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To Prof J. B. Rhine
in gratitude for his
work and hopes this
work on "waves" may
interest him.

New Years' Day
1936

Helen E. Baard
October 1946

THE WORLD BREATH

THE WORLD BREATH

BY

L. C. BECKETT

L. C. Beckett

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TO

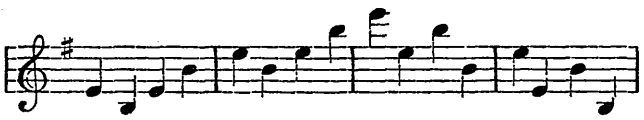
SIR ARTHUR EDDINGTON

IN GRATITUDE FOR

"THE NATURE OF THE PHYSICAL WORLD"

"FROM the unmanifested all the manifested stream forth at the coming of day; at the coming of night they dissolve, even in THAT called the unmanifested."

Bhagavad Gita, VIII, 18



G. PUGNANI-KREISLER.

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ABBREVIATIONS

N.P.W.	Nature of the Physical World. By Sir Arthur Eddington.
St. & At.	Stars and Atoms. By Sir Arthur Eddington.
Exp. Un.	The Expanding Universe. By Sir Arthur Eddington.
Un. ar. us.	Universe Around Us. By Sir James Jeans.
At. & Qu.	Atomicity and Quanta. By Sir James Jeans.
Mys. Un.	Mysterious Universe. By Sir James Jeans.
Ast. & Cos.	Astronomy and Cosmogony. By Sir James Jeans.
Sc. of L.	The Science of Life. By H. G. Wells, Julian Huxley and G. P. Wells.
Or. & Ev.	Origin and Evolution of Life. By Henry Fairfield Osborn.
A.B.C.	A.B.C. of Atoms. By Lord Russell.
T.G.H.	Thrice Greatest Hermes. By G. R. S. Mead.
W.S.G.	Where is Science Going ? By Max Planck.
M.M.S.	Modern Man in Search of a Soul. By C. G. Jung.
Exp. with T.	An Experiment with Time. By J. W. Dunne.
J.P.S.	Journal of Philosophical Studies.

All the quotations from Plotinus are taken from Stephen McKenna's translation in five volumes ; those from Ekkehard are from Hermann Buettner's edition in two volumes, translated by the author.

N.B.—I have used the terms : Authentic Existence, Primal One, God, One-All, the Divine, the Eternal, the Breather and others, indiscriminately, to denote what we usually term God, hoping that this would assist my reader in getting away from the usual personification, inseparable from any habitual form of designation.

INTRODUCTION

IN setting out to write this book which has long been in my mind, I do not imagine that I am going to say the last word that could be said on the subject with which I shall deal. I realise only too well that it is a matter far too vast to be comprised within the limits of two covers. I may as well also admit that I have made various attempts in the last ten years to elucidate this question,—attempts which have come to a sad end in the waste-paper basket! But all this time and effort have not been wasted; each succeeding year has proved to me that my ideas of the year before had grown and developed so considerably, that what I had written was only a partial and therefore inadequte aspect of the Truth I was seeking. I speak advisedly when I say: inadequate. I do not in any sense mean "incorrect." On the path to Truth, so long as one can say: this idea is bigger than I thought, one may confidently pursue it. And, as no step may be skipped on these paths, I feel certain that I should never have attained my present convictions except by this very long and circuitous route. Not one inch of the ground I have covered could have been neglected, not one stone omitted from the building. If my present conviction does not go the way of others that have preceded it, it is because I have found that, for the last few years, every idea seemed to lead the more surely to a confirmation of this one, there has been nothing that, so far, has been able to shake it.

Nothing that I have heard or read on these subjects has any more attraction for me, there is a deep inner conviction of knowledge which nothing can add to or upset.

Thus fortified, I think I may justly attempt to share this faith of mine with others, and, although I cannot deny that it is somewhat of an affrontery to add one more attempt to solve the true nature of ourselves and the worlds around us, to the many solutions that have been evolved since the beginning of the world, yet it seems to me that every sincere seeker after Truth who discovers an answer to this problem, that fits in with everything that is known in his day, helps to carry

understanding men one step nearer the goal. The search for Truth is open to all, and must continue incessantly until THE TRUTH be found, and any answer to the questions: how and why, which embraces the whole universe, science and philosophy, life and religion, in one vast Whole, may, it seems to me, bear some relation to ultimate Truth, and must therefore not be withheld.

If we remember that even scientists, who make no pronouncement regarding the results of their studies, unless it can be mathematically proven, are still so far from a final solution to the problems of physics, astronomy, etc., that they are continually faced with the necessity of altering the statements of yesterday, to bring them into line with the knowledge of to-day, it is in no way surprising if, in relation to the far more inscrutable subject of existence in general and life in particular, explanations alter with every succeeding generation, more especially so in our time, when all such questions are being agitated in the market-place, and men are moving faster than ever before in their mental activities, and theory follows theory in attempts to solve age-old riddles. But if, undaunted, every man contributes his share to an understanding of the Whole, probably in the end there will come a new synthesis, that will burst on mankind like the rising sun on a summer's day, and the human race will then start a new function altogether.

Before this can occur, however, it is clear that the two main lines of human thought, the religious and the scientific, both of which devote themselves to discovering a solution to the problem of existence, will have to be brought into some kind of relation to one another. It has become little short of ridiculous to hear one denying the authenticity of the other, when both are equally religious and scientific in their aims and means! But things are moving, and lately there have been voices raised from both camps, expressing the hope that some day someone would arise who would undertake the task of uniting both science and religion in one great synthesis, which would comprise everything in the realms of both, and make one of all aspects of life. But in order to reach this end, it will be necessary for both scientist and priest to abandon his watertight compartment, and allow something of the ideas of the other to enter his domain. Scientists are verging towards this end, we have already left the Victorian man of science, who regarded all religious ideas as only fit for women and children, many miles behind us. But even so, I think Sir Arthur Eddington is the first great scientist to have admitted

that where science reaches its limits, faith might take up the thread, hence the universal appeal of his work! Churchmen, I regret to say, have remained much more obdurate in their isolation, and have only grudgingly admitted scientific facts when there was no way of escaping them. I speak here of Christians, and their attitude is all the more surprising in that Jesus Himself employed many of our latter-day scientific methods of dealing with problems that confronted Him, as we are now discovering.

If we consider the matter more closely, there seems to be no real reason why science and religion should not work together, their ultimate aim being the same: the discovery of the primal and fundamental Cause, the *Deus ex machina* of the universe. The only difference between them lies in the fact that they each seek the goal by a different path. The scientific seeker refuses to acknowledge any fact that cannot be proved by observation or calculation, although admittedly the greatest scientific minds, the explorers in science, precede their most important discoveries by an intuitional apprehension of some fact, which they subsequently set themselves to prove mathematically or experimentally in order to convey their knowledge to others. Such intuitional knowledge has never been shown to be entirely false, even when it was not the whole truth. A friend of mine once asked Einstein if his theories were the outcome of long calculations, or, if he first had the idea and then set himself to prove it? The reply was that the idea arose spontaneously, and Marconi said the same thing to me. That such ideas are in the nature of inspiration cannot be doubted; they arise in some subconscious state within man, which has nothing to do with reasoning, but which has given birth to all the greatest art and all religion. And, if the scientist has enough faith in his idea to spend years of his life in proving the truth of it, it certainly becomes his religion.

The religious seeker, on the other hand, listens to the promptings of the same voice within, but he differs from his scientific brother in that he believes that the ideas which thus arise to his mind are manifestations of the voice of God, and accepts them without need of proof. The great religious leader knows that anyone who follows the same path as he, must eventually and quite infallibly obtain the same results, which he knows to be right, therefore he states his facts and never argues,—"He that is not with us is against us," that is all. All truth of this nature is eventually approved by life itself, as it has been in the case of Jesus Christ. Millions still believe that the

ideal which He gave to the world would raise mankind to supreme heights, although this cannot be proved by any mathematical calculus, nor have those who most nearly succeeded in realising it achieved worldly success, or been generally considered fortunate from the world's point of view. Therefore, if that ideal still persists, it must be of the same nature as the idea to which the scientist pins his faith, only that, instead of one man, it is a large part of mankind that has attempted to prove the truth of it through two thousand years.

Such dominant ideas are certainly inherent in the genius of the human race, and undoubtedly they have, in one form or another, worked from the first to raise the animal man to *homo sapiens*, and they will certainly further impel men forward into whatever more evolved being shall follow the present stage. We in the West call our leading idea: Jesus Christ, but those who are not Christians, the high Lamas of Thibet, the people of Japan, or the Buddhists of Ceylon, find the same idea in the Buddha; the Hindus find it in their ancient Rishis; and even the atheist among us, who lives up to his own ideals, is still a follower of this common aim, be he aware of it or not, driven thereto by something within that has nothing to do with his reason or logic. One need but to compare the cave-men to ourselves to realise that much has already been done; but mankind is still very far from the final goal!

We see, therefore, that some kind of faith always leads the way in the life of mankind, and the lives of the mystics as well as those of the scientists are spent in justifying their faith, only the latter have not cared to admit it until recently! But since I can take it on the authority of Sir Arthur Eddington that: "Something unknown is doing we don't know what,"[1] there can be no objection to my seeking that "something unknown" wherever my intuition may lead me. Perhaps the inner self (or the subconscious mind, or soul, if my reader prefers either of these terms) which is the undoubted source of all beliefs that have so far led mankind on its way, may give some hint as to the nature of that after which all men are seeking, since it seems itself to be part of the mystery.

The great mystics of the past, Egyptian initiates, Indian Rishis, Kabbalists, Gnostics, Neoplatonists, and Christian mystics, have told us much, but men of the present day have turned away from their teaching, feeling that their ideas would not stand the required tests of modern logic, but what reason is there for supposing that the intellect, which is the source of

[1] *N.P.W.*, p. 291.

logic, must constitute the final criterion of Truth ? Has it been proved so infallible ? It seems to me that it is merely a function of the grey brain matter, and certainly none of the great treasures of the world have ever come out of it. It is not the inspirer, but the inspired—that mental activity which applies itself to co-ordinating the conditions of life for practical purposes. It has certainly been the chief ruler in our modern civilisation, but it has never swayed the world as have the acts of genius. And the genius of every sort, were he a St. Francis of Assisi, a Shakespeare or a Napoleon, never sat down to reckon out the pros and cons of his activities from a logical point of view, one and all were driven to act by some inner urge—they *could* not have acted in any other way. Rationally considered, according to ordinary criteria, they should be regarded as insane ; but the intuitive self of mankind, which responds to the call of those whose lives have been the revelation of an inner motive power, judges them according to its own criterion,—not according to the intellect—and proclaims them right. If then, in relation to the activities of life, the judgment of the intellect is not to be accepted as infallible, why should it be so in the realm of ideas ?

If we take the ideas that solely apply to the material world, and their object be utility, measured by profit and loss, then certainly let the intellect, which itself belongs to the world of material things, be the supreme tribunal. It is undoubtedly useful in dissecting the material world, but we must never forget that as the centuries go by, it, like its objects, alters and develops, it denies in one century what it asserted in the last, and finally goes limping along, hanging on to the tail of the comet Genius, which pursues its way, unheeding intellectual preconceptions. The ideas of genius do not arise in the world of material utility—this world makes room for them or persecutes them as the case may be,—but genius expresses itself unmoved by the world's wishes or expectations, and at the back of all that later intellects dissect, lies direct inspiration. Therefore to the inspired genius alone should we look for the answer to the great question : why and wherefore ? for his understanding soars out like pinnacles into something outside human life, and reaches beyond the realm of reason or logic, into what more resembles Truth itself. That is the only thing that matters, and the why and wherefore are an eternal spur to reach those pinnacles. When the genius calls to us and says that : " there are more things in heaven and earth than are dreamt of in our philosophies," of which things he and his like seem to possess

some experience, mankind glimpsing their heights is spurred on to attempt the ascent. Were the heights forever buried in clouds, existence in our valleys would be dreary and purposeless, but religion, art and science send us messengers to open our vision to vaster horizons,—to realisations of possibilities beyond everyday experience. And in this they walk hand in hand; the great religious mystic says: "The Kingdom of Heaven is within"; the great scientist says: "We all know that there are regions of the human spirit untrammelled by the world of physics. In the mystic sense of the creation around us, in the expression of art, in a yearning towards God, the soul grows upward and finds the fulfilment of something implanted in its nature. The sanction for this development is within us, a striving born with our consciousness, or an Inner Light proceeding from a greater Power than ours."[1]

We may as well admit, therefore, that there is no wall fixed between science and religion in the realms of inspiration, and further, even though, biologically and zoologically speaking, the story of Adam and Eve cannot be accepted by the scientific mind, and the religious mind refuse to admit any relation between ape and man, yet the scientific genius who puts back the hand of the Creator a few million years, and discovers its craft in the waves of energy proceeding out of the original spiral nebula, and the religious genius who sees Him creating light in the beginning, are certainly brothers, for both start from the same premise and obtain the same result. The time factor which is of no consequence in our relativity era, is their main point of divergence, but what is time? As against eternity, the difference between the mere $5 \cdot 10^{12}$ years since the beginning of the sun as a luminous star,[2] and seven days is not worth worrying about. The main point is that the premise: "In the beginning God created" followed by the question: "Did He?" is the common starting-point of all seekers after truth, whether religious or scientific, in all the ages, and we therefore need make no apology for accepting it as our starting-point in a new attempt to solve the old mystery!

Men have often denied the necessity of a creating hand, but it has a habit of cropping up again in the most unexpected places, and those who deny it to-day, do so at their peril, for even the dryest mathematician, the most dogmatic scientist is coming perilously near to being forced to admit that what he has hitherto scoffed at as the illogical thought fathered by the

[1] *N.P.W.*, p. 327. [2] *N.P.W.*, p. 169.

wish, is a limit that meets him at every turn, against which he beats his wings in vain. Yet, such is the tenacity of man, that even after centuries of failure he will not abandon the attempt to circumvent the Creator, and ever re-commences the attack from a different angle,—perhaps the very effort to justify denial will eventually bring the supreme confirmation.

In the meantime whence comes this eternal urge to quest, inherent in all the greatest geniuses of art, science and religion? I will not use the word "soul" in reply, for it has been too much misused, and has come to mean something that a scientifically minded person blushes to talk of. But as psychologists frankly admit the idea of the *subconscious mind* to-day, and recognise that within it lie powers as yet unanalysable and untapped, I think that, if anywhere, the source of inspiration must lie here, and if I use this expression I shall be free of any preconceptions either religious or scientific.[1] Out of the subconscious mind, there come to the most enlightened among men, visions which they, by their tongues or their pens, their chisels or their notes, reflect on to the limited horizons of their more grossly constituted fellows; theirs is a sense of vaster spaces, greater powers, wider horizons, of immense forces which toy with universes, and this inner urge will not allow them any rest until they set out to realise its sources. And within the subconscious, from which such men obtain their visions, there must also lie the Reality, which leaves its record on the mind and makes it forever restless amidst the illusory world of the senses. For that it is illusory, is another of those inner convictions that do not admit of question, why otherwise should men forever seek to discover what things "really" are? If they were sure that what they see around them is ultimate reality, they would not be forever inventing more and more perfect means of investigating and probing into the various world forms that meet them at every step; Einstein would not have discovered his Laws of Relativity and Gravitation, Bose would not be elucidating the real nature of plant life, etc.; instinctively we know that we know nothing of Reality and therefore we cannot rest. But that which recognises this fact must possess some knowledge of what is real, otherwise there could be no criterion for what is not.

Therefore, apart from all dogmatism, all rationalism, we

[1] N.B.—I would much prefer to use the Greek word "νους" or the Indian word "Chitta," but there are so many interpretations of these terms, according to their context, that it is better to use one familiar to all, even though inadequate.

must still seek to discover the kernel that lies hidden within these forms of matter of which we form part ; having caught a glimpse of this, all else would vanish into thin air.

In seeking the ultimate Reality it is very difficult to keep the balance between science and religion, for many of our premises must be drawn from the former, many of our results will appear to be a return to the latter : and each as it is constituted to-day will cry out that I am overstepping the limits, either of the deductions permissible from known facts or of what may be ascribed to the nature of the Deity without blasphemy ! I must run these risks, however, for the one thing that is certain beyond any manner of doubt is that the Source of all things must be "a-scientific" and "a-religious." It does not need any mathematical calculus to prove itself, for it is itself the finished result as well as the first premise ; it does not need faith for it is itself the fountain of all faith.

He who, seeing scientific terms, would approach this work with the idea of judging its conclusions on purely scientific grounds, should lay it down at once, for the idea it contains is as immeasurable by these as is any religion. But he, on the other hand, who would measure it by the religious doctrines which he holds as an orthodox Christian, should equally forswear it, for the two will not combine. Even though I may have a great deal to say about Jesus Christ, and with deep reverence will it be said, it will certainly not meet with the approval of an orthodox person.

That which arises between science and religion, and is of the essence of both, might be called the "Middle Way," but it is no "ism" nor "ity," it is not fossilised in any dogma or church ; he who is content with accepting the ideas and laws taught him by others will never tread this way, each step of which is learnt by the sweat of man's own individual endeavour. He who takes that "Middle Way" must be ready to say to scientist as to priest what Siddhartha said to the Buddha : "Brahmins must feel their hearts swell with joy when they consider the world in the light of thy doctrine which forms a perfect whole, without the least break, which is clear as crystal, which is neither at the mercy of chance nor of Gods. . . . But there is one thing which this doctrine so clear, so worthy of respect, does not contain, and that is : the secret of what the Sublime One Himself is alone to experience among the hundreds of thousands of human beings. Therefore must I continue my pilgrimage, not in search of another or a better doctrine, for I know there is none ; but to free myself of all doctrines and all

masters and alone attain my goal or die,"[1]—that is what I have done, and this work is the story of my own experience. Out of this experience there emerges a new synthesis of world forces, a synthesis which covers all the new-found scientific facts, and which anyone who is able to regard things from the same angle will then be able to follow up for himself.

What I am about to say makes no claim to be the final word on the subject, it is in no sense exhaustive ; it is possibly a new way of regarding the world, that is all, but it is rather a difficult way to seize. One may sometimes remain months without being able to see anything in this light at all, and then again everything fits quite simply into this new world scheme. It is like a diamond's facets. For many years I wore one, and saw merely a white glittering stone ; one day, sitting in the sun, and turning it about idly I was dazzled by a flash of red flame coming out of its heart, but when I tried to get it again it was not so easy, for I had no idea how it had occurred in the first instance. I could get blue or green lights, but that flame seemed to be the secret of the diamond. Likewise one's mind has to be very alert to catch even a fleeting glimpse into the realities "within," and I am therefore under no illusion that it will be an easy task to express what I have perceived, but I must try.

Let us then set out with the minimum of rules and regulations at the back of our minds, either scientific or otherwise, and, above all, as few prejudices as possible, just holding to the few greatest among the Truths now discovered or handed down through the centuries. These are not difficult to find, seeing how few truths are unassailable after our millennial quest after Truth. We are still so completely mystified as to what lies beyond the world of our common knowledge, just over the next ridge of mountains, that if, in making an attempt to climb our Everest from a different angle to those attempted heretofore, we discover that it looks rather different from what we had imagined, it need not surprise us. I am going to try and look at this problem of Man and God from what might be called a magic point of view, thereby not meaning the old idea of magic connected with witchcraft and the like, but something which is so difficult to define that it is magic in very truth,—if the significance attached to this word by the Oxford Dictionary, namely, an "inexplicable and remarkable influence producing surprising results," be the true one.

[1] Hermann Hesse : *Siddhartha.*

The scientists have given us some great laws: gravitation, entropy, quantum and the like. They have measured, controlled and observed, and drawn their conclusions, but supposing the wand of the magician were waved over all their facts, and they were seen to belong to an order of things quite different from what their authors had imagined, would not this seem magic? If all material facts were suddenly to be transmuted into a manifestation of entirely immaterial phenomena, for which not mathematical calculations but something unknown within ourselves stood sponsor, it might be held that such an aspect of things projected out of that unknown must be an image of itself. (We know that everything we see is but a reflection of our minds, that is one of the laws of the mental world: it can only bring to a thing what it contains within itself;) therefore, if out of the inner genius, some magic power arises which transforms all the observations collected by mankind since the beginning, regarding the nature of the physical world,—including the mind of man himself—into patterns woven in some vast Design, should we not regard that power as being, not only the soul of the design, but also part of the spirit of the designer? Anyone of us to-day has seen patterns made by vast concourses of people, trained to carry them out—soldiers in the Tattoos, members of the Czech "sokols", for instance,—but we can be certain that not one of those people taking part would know anything about the design they were forming, unless told. If then, some one of us glimpses the world design, that sense by which he does so certainly deserves the term: magic, for it must necessarily arise out of the nature of the designer, whilst being at the same time part of the "surprising results." If, then, we were to recognise the world as interpreted by this magic power, which we possess within, we must eventually enter fully into the very nature of the Designer.

Religion in one sense may be faith in what no man can prove, but directly it leaves mysticism behind and becomes organised religion, it necessarily becomes materialised; we worship in forms, we eat bread and drink wine, we pray to a God made rather too closely in man's image, to obtain material benefits, we try to buy His favour by being "good." But these ideas were not those of the founders of any great religion; such did not suggest that their followers should "pray to God" to remove mountains: "If *ye* had faith as a grain of mustard seed," that is the teaching of all the great seers. (By our own act from within, we can draw the power for all things, for that

which is within is the source of life, the living Idea. It has driven the Life force from amœba to man, we can well believe it has the power to drive men into gods. But so far we have not been able to perceive anything of its real nature ; if, however, by freeing ourselves from all doctrines, all preconceived ideas, all pursuit of that which is imposed from without, we boldly set forth to seek the transcendent Life that is behind all manifestation, not caring whether it agrees with priest or scientist ; if quite simply we seek first the Kingdom of Heaven, after having ranged throughout the entire universe, both great and small, we may at last find ourselves at the doors of that Kingdom, and discover that all those things through the medium of which we had sought to unravel it, were themselves the Kingdom, and that it lies there where all true teachers have always said it must be : within ourselves.

PART I

PERIODICITY ON EARTH

"THE Matter of this realm is all things in turn, a new entity in every separate case, so that nothing is permanent and one thing ceaselessly pushes another out of being. . . . Notice that the destruction of the elements passing over is not complete—if it were we would have a Principle of Being wrecked in Non-being—nor does an engendered thing pass from utter non-being into Being: what happens is that a new form takes the place of an old. There is, then, a stable element, that which puts off one form to receive the form of the incoming entity."

PLOTINUS: *Ennead*, II; 4; 3 and 6.

CHAPTER I

WHAT IS PERIODICITY?

AS I look round me on the universe to-day, from the world of vast spaces revealed by the astronomer, from the extra-galactic nebulæ, or island universes, down to the microscopic worlds of the physicist who sees a universe in an atom, or the potentialities which the biologist discovers in ultra microscopic genes, I see one thing common to all, which arrays them all into one colossal wheel of existence, and yet which appears to have been overlooked by all investigators thus far. There have been various theories about a common nature running through universal creation: at one time it was the ether; Einstein called the speed of light the C (constant); others have seen it in the quantum theory; now it seems to be some species of wave mechanics. But be it where it may, Man seems to feel there is some unity of activity, if not of purpose, behind everything, which co-ordinates the whole, and at every step forward he places this Constant at some other point, in some other factor. This is all very well for the physicist or the astronomer, but there are also other people to be considered: the biologist, for instance, or the philosopher, or even the saint. Each of these may put his Constant in a different form at which the physicist might well scoff, but his form is no more certain than is theirs.

In looking for such a Constant, it seems to me it should be sought for outside any specific realm, all realms belonging to all sciences being obviously dependent on the construction of the human mind. A Constant should be of such sort, that could we wipe out all human consciousness, it must necessarily still remain. I can hear some of my readers ask ironically: "You don't mean to speak of God the Creator, do you?" Immediately, certainly not. But, if later something very like Him emerges from what I say, it will not be because I intended to write His apologia!

Let us then begin by asking ourselves if it be possible to discover some universal factor, traceable through every form

of science, philosophy or religion? A factor about which there can be no manner of doubt, and which forms the basis of every kind of investigation, the basis of all those things that Plato termed "things in themselves," and Kant "categories." It is in all probability in the nature of the wood that we often cannot see for the trees; if it exists at all, it must be something simple and all-embracing, yet at the same time embodying an abstract principle, for only such could be of the nature of an Absolute.

Perhaps it would be as well to make clear what I mean by "abstract principle," seeing that this work deals mainly with something of that nature. There are, as we must have realised by now, two orders of existenec: firstly, an order of things which make up the sum of the physical world that we can dissect, can see and understand, and which bears some relation to what we are in ourselves, a world that is essentially comprehensible to us. But, at the same time, we know that were our optic nerves and our brains differently constituted (such as may possibly be the case with living beings on another planet, if there be any), our ideas about this world would be completely altered! (Therefore, although we think we know all about our surroundings, even here we have to admit it possible that we do not know the true nature of that which our senses apprehend.)

Besides this, however, there is another order which has been dawning upon us in this short quarter of a century, namely, an order of "laws" or principles, to which the first order conforms, and on which it apparently entirely depends for its creation and maintenance, but for which our minds can as yet find no definite explanation or reason. This new order of things is of a totally different nature to anything we have known hitherto, and what we call "Laws" might just as well be qualities pertaining to some Factor unknown. When we shall have learnt something of their true nature, we shall certainly realise that if any one of these laws were absent, nothing at all would exist in the form we now see it. Knowing even only a little about them, one is tempted to regard the entire cosmos as the materialisation of some such principle. It should be clearly understood, however, that I do not mean any concrete substances when I speak of either laws or principles; it would be a complete misapprehension of facts were we to conceive them as such. They are more in the nature of what Plotinus calls: "reason principles," yet they are as real as are any physical bodies, far more so in fact.

I might even go so far as to suggest that they are the only thing we know of the nature of reality. Not alone the Quantum theory or the Law of Periodicity, but also Truth, for instance, may be regarded as of such nature: it is in things and outside of them at the same time. So must the nature of the great Constant be, only, to be true to its name, it should exist, not alone as a concept of the human brain, but should be seen to act in everything which we perceive, irrespective of our desires or convenience. (It should be implicit in the very existence of all things in the universe, it should be possible to demonstrate that nothing occurs in which it could not be discovered in one shape or another, even if its purpose remains hidden.) Could we but obtain a fleeting vision of the existence of so universal a Power we should have made a vast stride as human beings!

"There is a tide in the affairs of men," said the greatest poet, but if it could be shown that this tide were not limited to the affairs of men, but were a rise and fall proceeding throughout the universe, this would prove that men and the universe were one, governed by one rule, and everything we see in our limited surroundings would necessarily become an aspect of something which must manifest itself as well in the fall of a leaf as in the birth of a star. The fact of its being apparent on every side in quite common and simple facts of life should be no reason for its not being universal. On the contrary we should find indices of it everywhere, if once our senses were attuned to it.

Let us stand on the beach and watch the sea come rolling in, and far above it the moon sailing calmly across the night sky, oblivious of the gazing eyes and the advancing sea. And yet, if we think about it, we know that that sea is its slave; it rolls in and out claiming land, or disgorging it—and not only do we know that it rolls in and out twice a day, but we see that each movement it makes on its path is a continual advance and retreat, and that even those waves which advance and retreat have their own unceasing rise and fall—and, finally, we look up at the moon and we laugh in its face: "Our sea is obliged to advance and retreat according to your commands, but you need not be so self-complacent. Are you yourself not dependent on the waves of light that reach you from the sun, on the electro-magnetic vibrations that hold you to this earth?"

"As above, so below," from ripple on the wave to moon, the activities in all proclaim something common to all, which common ground leads us to the core of the problem I have

set out to investigate ; for this rise and fall of the tides, this wax and wane of the moon, the change of season, day and night, life and death, these are so many names which, as it seems to me, cover one and the same thing, and inherent in this phenomenon lies the greatest law of the universe : its life *motif*.

When we talk of Life we often speak of "the breath of Life"—which means the intake and output of air ; when we talk of wave mechanics in physical science we visualise an alternate being and non-being. So also we find traces of it in the living heart ; and when we consider the sea and also the life history of stars, we find the same periodic rise and fall, the growth, consummation and decay. Now in all this and many other examples which I shall speak of later, we perceive a regular alternation of activity and inactivity, an apparent ebb and flow, force and weakness, appearance and disappearance ; all the shapes and forms we know which are apparently as different as the intake and output of breath is to the ebb and flow of the tides, carry with them as the law of their being one common property, namely, periodicity in their events.

This seems a very prosaic and material way of expressing perhaps the greatest law we shall ever know, and indeed it is much more than this sounds, but in order to make the abstract conception, which is at the basis of my whole philosophy of life, clear to my modern, scientifically minded reader, I must borrow scientific terminology, and call it the Law of Periodicity. Under this designation I shall attempt in what follows to portray a great rhythmic motion, swinging from maximum to minimum, in a vast system of waves and tides, that embraces the entire universe we know, and stretches even beyond this, to that which we can only surmise.

But here at the outset I wish to make it clear that although I shall speak of this system in some places as waves : i.e. rises and falls ; in others as tides : i.e. increase and decrease ; and again as the discontinuous emission of electro-magnetic radiation : i.e. alternate appearance and non-appearance of particles of energy ; or as life and death, and ultimately as the expiration and inspiration of breath, yet in all these various forms I see only various expressions of one single phenomenon, or event as scientists would call it. A wave rises and falls, but as a matter of fact it is purely a swell and a deflation, and increase of substance in one place is synchronous with a decrease in another—it is in fact a system of undulations. And this same expression is employed by scientists to describe waves of radiation of every kind, even though in that case, between one

rise and another there is nothing appreciable at all. As far as our capacity to gauge the mechanism of radiant waves goes, it seems that they move forward in longer or shorter waves of varying periods, but between each crest the wave seems to be nowhere instead of in the trough as are ocean waves, or perhaps it only disappears to our eyes because we have as yet no means of tracing it in the interval. In any case, it is an unquestionable fact to-day that waves of radiation sway the physical world, and this is what matters here. As we shall see later life and death are in all probability but another manifestation of such discontinuous waves! Last of all I see tides and breath in the same light: like waves of radiation their activities are divided into regular periods; and this applies equally to ocean waves, to the breathing system of living organisms, or to the increase and decrease of stellar bodies; everywhere one finds a period of rise, growth or inflation, after which the organism sinks back again to nothing; or, if we think of breath, there follows the emptiness or pause before the start of the next intake. The outbreath of the system can well be likened to the ebbing tide, the intake to the flow; it is all the same periodic increase and decrease. But, as the breath of life seems to be the most significant expression of all the manifestations of this periodic Law, I have used that simile alone in the last and culminating portion of this work, that which will sum up all rises and falls, waves of water, vibrations of light, tides, lives of men, astronomic systems, rhythmic motions of every description, in one vast ulterior Life.

It may be questioned why I do not use one term all through to express what is obviously one set of phenomena, but I have employed every term that signifies periodic motion advisedly, because, by a multiplicity of terms and similes, I hope to keep the idea alive and fluid, able at any time to embrace any new system, any fresh manifestation or idea. If once this idea became nailed down to one fixed designation, either: wave, or vibration, or breath, it would become sterilised and cease to be a Law of the Infinite. I realise only too well, however, that it will take a great deal of time and effort before we can visualise the whole world and life and the universe in these terms; that Law is something to which men's mental eyes will have to get accustomed. It is rather like seeing pictures in a stereoscope: unless the images life presents to us are so placed that our two eyes simultaneously see the picture and the Law, there will be no perspective, and only

the two-dimensional aspect of life will remain present to our vision.

Another point which I wish to make quite clear before I begin is, that in all I am about to say it is never the scientific event, nor the fact of experience, that is the real object I have in view. I must necessarily start with these as a basis, but unless my reader firmly keeps in mind that these are merely to be taken as illustrations of the manifestation of an entirely unmaterial factor, of which they are the instruments, he will never see anything but just forms in my words. I propose to study the Law of Periodicity throughout all earthly and universal phenomena, as we know them to-day, and I hope in the end to establish one nature common to all. To this end all sciences will be asked to contribute, although they will never be an object in themselves. Finally I shall launch out into the relations between material and non-material worlds, energy the fruit of the dissolution of universes, and energy the snmmit of human life, where I shall hope to reach the final goal.

I long debated with myself whether I should start with the theme of the great melody that embraces the entire universe, and from thence lead on to the variations, which exist all around us,—according to the laws of music,—but I finally came to the conclusion that even though it be necessary to break these laws, in the interest of a better understanding of the theme, the variations in this case must lead the way. The theme is so vast that the thunder of it might deafen the ears of the listeners, had they not been prepared for it by attempts to pick out its notes through the intricacies of variations. Once we have understood these, we shall begin to hear the dominant notes of the theme sounding through all harmonies and intervals, until at last it will drown all else in the majesty of its great chords.

CHAPTER II

WAVES AND THE PHYSICAL WORLD

WHAT is likely to have attracted the attention of the first self-conscious man, as he considered the conditions of the world around him? What to his mind may have been the most salient qualities of existence? Would he not have made some differentiation between the animate and inanimate forms which surround him to begin with, between life and death in Nature, on which his very subsistence was dependent? All primitive religious festivals prove to us that these facts must have been the chief pre-occupation of early man, and his first care was to obtain the favour of the gods in a regulation of the seasons' temperatures according to his wishes. But these facts are not only of primary significance to primitive man, they have grown and spread in importance in direct ratio to the growth of our knowledge and understanding of the world, and to-day we recognise that they not only relate to life in general and animal life in particular, but that they introduce us to a range of ideas that extends as far as the uttermost depths of the universe. When we shall have traversed the widest horizons of which our minds are capable, we shall still find ourselves faced by these phenomena, even though so greatly altered in aspect as to be hardly recognisable, yet still undoubtedly existing as the Alpha and Omega of existence. This being so, I think that these contrasting conditions deserve to be examined a little more closely.

In attempting to analyse the characteristics that differentiate animate from inanimate, and gauge their mutual relations and limitations, the first thing that dawns upon us is, that this classification covers alternate states of activity and quiescence, which run through everything we see or know of, and are both contrasting and interdependent! Not only do the more obvious earthly events of sleeping and waking, night and day, winter and summer succeed one another in some kind of causal relationship, but the more we study the universe in the light of scientific knowledge, the more incontestable does it become

that the animate and the inanimate worlds are not two opposite sets of phenomena, but that each is merely the complement of the other. Even though living organisms are imbued with a force that is undecipherable so far, and of which there is no trace in the elements, yet, without the co-operation of oxygen, hydrogen and carbon, no living system could exist—and there is no doubt that once life departs, the animate world dissolves back into the inanimate elements, which would make it appear that there is an interchange of movement and rest that goes on unceasingly throughout the universe, and we end by recognising that there are periodic events succeeding one another everywhere *ad infinitum.* And there is no definite proof that we should be mistaken in further applying this theory of alternating activity and repose to the problem of life and death. Even though we exclude any theory of life after death, we must still admit that from the purely physical point of view, life and death are a sequence of events which seem to keep this earth life going, perhaps they make up the character of this entity, as we shall later discover that the discontinuous emission of waves make up light ?

Until the present day we have been too much inclined to take this alternation of life and death for granted, it is inevitable, and, so far as we can see, inexplainable. We may study the phenomena of life, and various attempts have been made to pierce the mystery of death in the course of time, but the simple fact of their alternation does not seem to have concerned anyone, which is surprising considering how many examples there are of it on every side. Perhaps the fact that this has been ignored by both scientific and religious thinkers for so long is due to the fact that although we knew the activity side of the picture, we were in the dark about the other half, in the most obvious cases, such as sleep and death ; therefore the nature of both their periodicity and alternation was almost impossible to gauge. But in the last few years the theories of wave mechanics have altered everything, for the whole world has been shown to consist of waves of different kinds of radiation, only differentiated from one another by regulated periods of alternate *visibility and non-visibility :* " To-day we regard the universe as consisting primarily of waves—waves of radiation whose properties are specified by the undulatory theory of light, and waves of matter whose nature the new science of wave-mechanics is still trying to unravel."[1] If this, then, be true of the fundamental factors of the universe, why should

[1] Sir J. Jeans : *Mysterious Universe,* Rede Lecture, Camb., Nov., 1930.

we not be justified in regarding all alternate manifestations as of the nature of waves, rising and falling, being and not being, and being again somewhere else ?—If the universe consists of waves all things within it must, in larger or smaller proportions, manifest the same periodic nature, and an understanding of the scientific conception of wave-mechanics may serve to illustrate the nature of all periodic phenomena,—from night and day to life and death.

As far as we can tell at present it is impossible to reduce the world to anything smaller than the two constituents of the atom, or to discover anything more universal, therefore I propose to begin my study of the Law of Periodicity by an examination of the atomic world, with the object of discovering whether there is in it anything remotely resembling the characteristics of this Law. If it can be shown to be a governing factor here, at the very root of the constitution of the Universe, we shall have set foot in the stirrup and may find that our steed will develop wings that may some day carry us beyond the stars.

So much has been written and spoken about the atom in recent years, and so much is continually being altered in scientific conceptions of its nature, even from day to day, that I feel a certain hesitation in plunging into an account of it or its activities ! At present it seems fairly certain that the atom is composed of positive and negative charges: the proton and electron ; the former was until lately regarded as the final and irreducible nucleus of the Universe. But even as I wrote these lines, there came the news that Lord Rutherford had succeeded in splitting this famous nucleus which had hitherto resisted all attacks made upon it, and if the nature of the nucleus could be changed, there is no doubt that eventually the material which it composes would be altered as well. But this prospect is still a very remote one, and I do not think it need concern us here,—we do not yet possess the philosopher's stone ! The proton will certainly continue its work as heretofore so long as we live, and I can still pursue my investigations on the familiar basis.

What is of importance to us here, however, is not how or if the proton can be divided, but what the result of atomic activity may be. What is to-day regarded as the real nature of matter will in all probability be discarded to-morrow, and eventually, what we had always seen and known may just as conceivably be what matter "really" is, as that which has resulted from mathematical calculations ! Therefore any theory that bases

itself on the composition of matter as it is conceived of in 1934, cannot possibly be of the nature of that unchanging reality which we have set out to seek. But in any case, what the atom *is*, is merely of academic interest, what it *accomplishes* is of vast significance, for on its activity depends the existence of the universe. In this, as in all universal matters, we must not set out to seek the differences that distinguish the individual, but the likeness that runs through all—in synthesis alone may we aspire at discovering the integer.

In order to understand the activities of the atom, we must first of all learn something about another question that has been on the lips of all who have taken any interest in science in the last few years, and that is Planck's Quantum theory. Speaking of this, Eddington says: "At present we can notice the contrast that the laws which we now recognise as man-made are characterised by continuity, whereas the laws to which the mind as yet lays no claim are characterised by atomicity. The Quantum theory with its avoidance of fractions and insistence on integral units seems foreign to any scheme which we would be likely subconsciously to have imposed as a frame for natural phenomena."[1] Bertrand Russell adds that from this point of view he (Eddington) "inclines to the belief that the Quantum principle is the first real law of Nature that has been discovered in physics."[2] The quantum principle is, however, not in the nature of a physical fact which can be seen or touched, it is of the same nature as the Law of Periodicity, an immaterial calculus governing the relations and activities of material phenomena.

There are two decisive reasons for starting an investigation into the nature of the Law of Periodicity by a study of the Quantum principle, namely: (*a*) because it is the most universal and unalterable of any principle thus far discovered in physics; (*b*) because the Quantum principle is only demonstrable by objects that are either in motions that are *periodic*, i.e. the motion of a pendulum or a wave, one period being the time taken to complete the cycle from one maximum or minimum to the next; or conditionally periodic, i.e. compounded of a number of motions, each of which separately is periodic, but which do not have the same periods, as, for instance, emanations from stars or atoms. Considering, therefore, that I have set out to study Periodicity, and its role in the universe, I could not make a better beginning than by studying a principle which is, by its very nature, the calculus which defines

[1] *N.P.W.*, p. 246. [2] *A.B.C.*, 170.

that periodic emission of light or energy which enables us to form our conception of the material world. It is clear that if we wish to find a law that governs the universe, we must first of all understand the nature of the waves of light or energy and their cause; without these there would be no universe to study! Knowing this, we may hold the key to all cosmic phenomena.

Thanks to the spectroscope it has been shown that all forms of light, whether radiating invisible or visible rays, are emitted discontinuously, even though the gaps between one appearance and the next be so short that to the human eye there be no intermittence. The human eye is no more the sole criterion, however, the spectrum takes up the story where the eye leaves off, and the spectrum tells a very different story. All reflections of any kind of radiation on the spectrum appear in alternate light and dark bands, instead of in a steady light streak, as our eyes would have led us to expect. Now in studying the atom, we know to begin with that it is composed of positive and negative electric particles which have been called protons and electrons. The latter circle in certain specified orbits round the former, like planets round the sun; these orbits are ruled by certain periods of action known as the Quantum h. For instance, taking the smallest unit known at present, the hydrogen nucleus with its accompanying electron: if here, the circumference of the orbit is multiplied by the velocity of the electron, and the result is multiplied by its mass, the Quantum h is obtained. In the next orbit in which the electron circles, which is four times as large as the first, the result of the multiplication is $2h$. In the next orbit, which is nine times as large, it is $3h$, etc. "The energy which is lost by the atom in one of these jumps of the electron (from one circle to another. Au.) is turned into a light wave. What sort of a light wave it is to become, is determined by the theory of quanta. The light wave is a periodic process, and if the frequency is v, its period is the vth of a second. The generalised Quantum principle shows that if the period of a wave is t, the energy of the wave multiplied by t must be h, or an exact multiple of h, since t is the vth of a second (when v is the frequency), which follows that the energy of the wave is hv."[1] This h unit is said to be made up of erg-secs. "The erg is the unit of energy, and the second is the unit of time." To be exact $6{\cdot}55.10^{-27}$ erg-secs is the measure of the Quantum h, which is invariable throughout the Universe. There may be and are, variations in the composition of the

[1] *A.B.C.*, p. 77.

ingredients; the amount of energy emitted by the Sodium atom, for instance, during any one of its discontinuous radiations has $3{\cdot}4.10^{-12}$ ergs, and it is marked by a distinctive period of $1{\cdot}9.10^{-15}$ secs; multiplied together they give the invariable $6{\cdot}55.10^{-27}$ erg-seconds, or the quantity *h*. The same applies to any other source of radiation: hydrogen, calcium, X-rays, gamma-rays, etc. The energy may vary in its number of ergs, there will be different periods of seconds, but the net result will always be the Quantum *h*.

It is therefore clear that radiation is emitted from atoms, not in a constant flow, but in lumps of *h.v.*, or different multiples of it, and it is this fact "that is responsible for keeping the universe alive."[1] If there were a continuous radiation, the hydrogen atom which is at the basis of the universe, "would begin to shrink at the rate of over a metre a second, and after about 10^{-10} seconds, the nucleus and electron would fall together and would probably disappear in a flash of radiation. The Quantum-theory by prohibiting any emission of radiation less than *h.v.*, prohibits in actual fact any emission at all except from those few atoms which have a quite exceptionally large amount of energy to emit, from which it results that the duration of the universe instead of being measured in units of 10^{-10} seconds, is measured in units of 10^{20} seconds."[2]

Another interesting fact about the quantum is that no atom can imbibe anything but that exact measure of light or energy any more than it can emit it; it is as if an atom waited until it found the exact dose of energy required before it would accept any at all. If it can catch sufficient energy to cause one of its electrons to jump from one orbit to another, it will take it, otherwise it will let all waves pass it by undisturbed. Now the difference between two states of an atom should always be that of one orbit jump, or that between its weight with or without one Quantum. This has been proved by bombarding the atom with electrons charged with a known amount of energy. Only when their charge is sufficient to produce the exact Quantum do they leave any energy behind in the atom they traverse.

Since we know that what is atomic—everything we call matter—"is not material energy at all . . . but radiant energy or, to be more precise, the exchanges of energy between radiation and matter,"[3] I think that, in order to understand the real nature of everything our senses apprehend, we must now

[1] Jeans: *At. & Qu.*, p. 21. [2] *Ibid.*, p. 22.
[3] *Ibid.*, p. 19.

make a cursory excursion into the atomic realm, difficult though it be, to express, or understand it, without mathematics.

The parent of all atomic systems, the hydrogen atom, has one electron circling in wider or closer orbits round its nucleus. Above this, on the atomic scale, there are atoms with various numbers of electrons and protons, up to the atom of uranium, with its eighty-six electrons. Now all atoms have two forms of activity : on the one hand, there are disturbances in the atomic system caused by the absorption of a passing light quantum, which induces the electrons to expand to their widest orbits. This is then followed by the emission of an equal (or so nearly equal that it is hardly worth mentioning here) quantum of energy, or little parcel of light called a photon.[1] Subsequently to this, the electrons drop back from the outer orbits into the inner ones again, as no inner orbit may remain empty nor two electrons occupy the same one. Sir James Jeans says: "It appears to be a general law that each such disturbance produces one and only one complete photon. The atom loses mass exactly equalling the mass of the resulting photon . . . no experiment yet performed has suggested that a fraction of either a photon or an electron could exist independently."[2] This atomic exhalation and inhalation of photons of energy goes on continuously throughout the atomic world, which motion being alternate or intermittent instead of incessant, may be likened to the exhalation and inhalation of air by the living species !

Besides this, there is another important point about the nature of the electrons in atoms, namely, that their orbits are always certain exact multiples and never any other. The electron could never be in an orbit five times as large as the first, one time, and sixteen times its size the next, for instance, which is perfectly comprehensible, remembering that what the atom absorbs is always only a certain fixed quantum. "The electron might be able to vibrate in a great many different periods, but not necessarily in any period arbitrarily chosen. Now there must be a resonance between the waves accompanying the electron and the electron itself. The momentum of the electron and also its energy are connected by simple relations with the frequency of the guiding waves. It is shown . . . that the energy of the electron is proportional to the frequency of these waves, and that the product of the momentum of the electron and the wave is constant (namely, one photon).

[1] N.B.—A "photon" is something between the old conception of an electric particle and what has also been called a "wavicle."

[2] Sylvanus Thompson Memorial Lecture, Dec., 1931.

The possible values of the momentum will be separated by finite intervals so that the increase in momentum will not take place continuously but by jumps. This corresponds to a kind of quantisation of the momentum."[1]

Further, it is not alone that the momentum of the electron plus wave takes place at regular intervals, there is one more thing to be considered: in order to manifest in our four-dimensional world system, the energy emanating from the atom would be completely insufficient if it just appeared as a flash in the pan, it is the duration about which we spoke, the secs as well as the ergs which make the visible world.

In conclusion, keeping in mind the absorption as well as the emission of photons, the ceaseless indraw and output of energy occurring throughout the material universe, I do not think there can be the slightest doubt that the Law of Periodicity dominates and creates the universe we see, whether with our eyes or through the spectacles of the mathematician, all the more so since there are not only certain fixed rates of emission, but all movement so proceeds as to achieve a certain exact amount by the time one period is completed. This makes one suspect that in nature there is some kind of foreknowledge of the integral calculus without which "it is impossible to know how fast to go so as to achieve the certain result at the end."[2] This seems an amazing assumption to make but I think that everything that follows will substantiate it.

This, then, is one form of atomic activity, but there is also another, namely, the ionisation of atoms which occurs in the hot interiors of stars, where the radiation is so intense that electrons are continuously being torn away from their particular atomic systems altogether. When this occurs the ionised atom is rendered useless until it can recapture an electron to replace the lost one. In the meantime the energy, the mass of the star, radiates itself away, for an atom in this condition is incapable of placing any obstacle in the way of the outflow of energy. Eddington gives us a very clear description of this process. Speaking of the density or opacity of stars (but it applies equally to any form of radiant matter), he says: "An ether wave falls on an atom and its energy is sucked up by one of the planet electrons which uses it to escape from the atom and travel away at high speed. (Leaving the atom ionised. Author.) The point is that in the very act of absorption, the absorbing mechanism is broken and it cannot be used again until it has been repaired. To repair it the atom must capture

[1] J. J. Thomson: *Beyond the Electron.* [2] *A.B.C.*, p. 151.

one of the free electrons wandering about, inducing it to take the place of the lost electron. . . . We have seen that the stellar atoms have lost most of their electrons ; that means that at any moment a large proportion of the absorption traps are awaiting repair. For this reason we find a smaller opacity in the stars than in terrestrial material. The lowered opacity is simply the result of overworking the absorbing mechanisms—they have too much radiation to deal with."[1]

Here again we find ourselves bound to the laws of quantum or intermittence : just as the atom cannot exist except by imbibing energy of quantum *h*, so also may it not be destroyed without it. The alpha particles which may bombard an atom are still dependent on the quantum *h*, for were they not, the atom could not absorb them at all. But in this case the atom is attacked with such force that it crumbles to pieces and its electrons are carried off on further travels. And here it may be said that when the atom is bare of electrons (or ionised) its wave of life is in its trough ; when it recaptures one, it rises to its crest once more.

There is one more proof of the dominion of the Law of Periodicity exemplified in atomic activity. On our earth there are atoms which break up spontaneously, namely, those of radio-active substances. These are literally burning themselves away, so that what was once an atom of uranium transforms itself in the course of time to one of lead, which has not been discovered to have any radiation at all. From the radio-active atom four types of radiation are emitted, which are distinguished by different wave-lengths : namely, alpha, beta, gamma and X-rays. The first are known to be the product of the nucleus of the atom, being positively charged helium atoms ; the second are negatively charged electrons ; the third have lately been discovered by Lord Rutherford to be the result of a nuclear process intimately connected with the expulsion of alpha particles. In making the announcement of this far-reaching discovery, Lord Rutherford declared that he was now sure that gamma rays arose from the alpha rays, and had nothing whatever to do with the electrons from the nucleus. " The idea we now envisage is that this minute nucleus probably consists mainly of alpha particles—that is of helium nucleii. . . . It looks to me as if virtually all the gamma rays which we observed —at any rate those of higher frequency—were derived from the motions of alpha particles within the nucleus."[2]

[1] *St. & At.*, p. 30.
[2] Opening of the Congress of the British Institute of Radiology, Dec. 3, 1931.

If, then, alpha particles are definitely of nuclear origin, gamma rays which derive from them must necessarily be so too, and further it is certain that even in these, the minutest of all material phenomena, there are still different energy levels and intermittency. This is proved by the fact that among the particles emanating from Radium C. there are nine distinct velocities, but to one million of the normal or slowest alpha particles, there are only seventeen of the next most frequent kind, and the other velocities are represented by less than one in a million, except for one. These particles with higher velocities, although so rare, are of the utmost importance to complete my case; without them I would have had to admit one serious exception to the dominion of the Law of Periodicity. These different velocities emanating from the nucleus prove, however, that within it "there are certain definite energy levels and tell us what the steps of energy are. . . . According to the quantum theory . . . . if there is within an atom a change in energy which results in one act, in the starting of an electro-magnetic radiation, then the size of that change of energy tells us the wave-length or frequency of the radiation."[1] Therefore these nine particles of different frequencies tell the story of the wave-lengths which even the nucleus—the *ne plus ultra* on the downward scale in the physical world,—is obliged to conform to, and there can be no further doubt that periodicity rules without any exception throughout the whole realm of appearances, whether seen or calculated. The very existence of the universe is apparently dependent upon this atomic pulsation of *h.v.*, if there were no pause between one beat and another, the human heart must wear itself out before we had even lived a dog's life; if there were continuous radiation, "if *h* were strictly zero, the whole material energy of the universe would disappear into radiation in a time which would be measured in thousand-millionth parts of a second."[2]

I have dwelt over-long perhaps on this intermittent aspect of atomic activity, but it is of such vital importance to everything I have to say that it was necessary to make absolutely sure of my facts where they were open to proof, before proceeding to more abstract questions. I am starting on a road that leads to far horizons, but it is necessary to start all journeys by the path that lies at one's feet, in the landscape that is dull and familiar, in order to reach places strange and undreamed of. I have to explore the realms of physics,

[1] E. N. da C. Andrade: "Structure of the Atom," *Observer*, December 6, 1931. [2] Jeans: *At. & Qu.*, p. 21.

astronomy and psychology, of ordinary human life and metaphysics, but there will be one continuous thread running through the whole, and it seemed to me that this *leitmotif* was most clearly apparent in the physical science dealing with atoms. And this applies equally whether we regard all atomic emission as a series of waves of probability or as lumps of light : photons. The latest interpretation of the atomic basis of the physical world is that : " All we can perceive, are interactions in which transfers of charge or action from one system to another occur. We have no adequate reason for assuming the system to exist, or to follow any particular path in the interval. Strictly speaking, therefore, even on the classical view, we should have built up our four-dimensional world of a series of world points, at which the existence of particles was verified by their interacting with other particles, and at which tangents could be drawn defining their motions. . . . Indeterminacy converts these world points into four-dimensional elements of volume of finite size, not four-dimensional volumes with definite boundaries, but elements shading off according to an error function whose integral has the mean value *h*. The lines which previously could be produced from one point of observation to the next, become ill-defined cones, within which we shall find another interaction, in other words probability cones, which will enable us to predict where we are likely to find the particle interacting again."[1]

Far from altering the periodic nature of the Universe this latest interpretation only confirms it, by making the alternate appearance of a particle at points and its subsequent disappearance clearer than ever : being, non-being ; rise and fall ; crest and trough ; output and intake,—all is dominated by periodicity. Even if one goes so far as to imagine that radiation, during the period of transfer from one system to another may have no existence as anything at all, that it is only in interaction with our eyes, for instance, that something IS, there still remains a period in which it can be said : light *is*, and a period when *it is not*, and Periodicity rules supreme once more.

I hope I have now succeeded in painting a picture in my reader's mind of the material world acting according to, or acted upon by, something as indefinable as a thought law, something of spiritual nature in a way, yet at the same time absolutely definite and apprehensible in its effect, and this I shall ask him to keep in mind in all that follows, right up to the life and

[1] F. A. Lindemann : *Physical Significance of the Quantum Theory*, p. 45.

death of universes. In Eddington's words: "If we have any instinct that can recognise a fundamental law of Nature when it sees one, that instinct tells us that the interaction of radiation and matter in single quanta is something lying at the root of world-structure, and not a casual detail in the mechanism of the atom."[1]

We have so far examined this world-structure in formulæ presented to us by the mathematician, but of which our eyes or senses have no cognisance. If it be a fundamental law of the universe, however, Periodicity should be recognisable in the world we perceive as well as in that of the mind. Let us, for example, consider art and nature, and see whether two such very definite aspects of our daily life are still dependent upon Periodicity for their manifestations; if we discover clear evidence of its predominance here, then we can safely take it for granted that there is nothing on our earth that escapes it.

The most obvious example of the action of Periodicity is certainly that of ocean waves. If we stand on a high rock and watch a storm, we see huge breakers rising and falling, great mountains and valleys of water. Across these we may observe the smaller hummocks of the surface waves driven along by the wind, and if we watch the whole we shall see how one and all, some faster, some slower, are undulating onwards in one direction, as did the waves of radiation. Seen from above, the entire ocean seems impelled along, rising and falling, each rise a little bit more advanced on its way than the last, with its face scoured by the wavelets hurrying across its surface, like an old grandfather being pulled along by his young grandchild. We may then compare the larger or group waves to the motion of a material particle or electron through space, the small waves being the so-called waves of ether. This motion perfectly exemplifies Periodicity in the whole Universe: it is neither the atom nor the water in themselves that originate the whole movement, these are impelled by a force greater than they, against which they can put up no resistance, and yet which is not material as they are, but absolutely insubstantial. "The wind moveth where it listeth," no man may seize it and say: "Here it is," the most mighty forces are those which no man can see,—the greatest being the laws which govern even those invisible powers in Nature, and decree that rise and fall, extension and contraction are necessary for the maintenance of the whole universe.

I will take a further example from the greatest of all arts:

[1] *N.P.W.*, p. 189.

music. Music alone builds something into space around us for which Nature has no counterpart. It is no copy, but man's own creation, and for this reason has always, from the time of Pythagoras until the present day, been likened to pure mathematics. I do not propose to reduce music to mere numbers, however, but I merely wish to point out that without the intervals, music could not exist ; it is the intervals that dictate the various types of music, as wave-lengths distinguish Alpha and Beta rays, etc. If our ears are not attuned to the intervals the music becomes cacophony, as is the case for most Europeans who hear Chinese music for the first time, and I suppose equally vice versa. Also it is the intervals, not only between the bass note, the major third and perfect fifth, or those which distinguish the quaver from the semi-quaver, which enable us to build up a symphony or a song, but also those of time between the beats that reach our ears. If one note ran into another, if there were not those two notes of interval between bass and third, that pause between two and three,—even though it be sometimes so short that it is almost as imperceptible to our ears as are the intervals in the light-waves to our eyes—music would never have existed at all. What is this interval ? Has it any greater tangible reality than the pause between two breaths, can we identify its properties ? No, it is merely the nought holding in itself the probability that another note will follow, which carries us from note to note, chord to chord, and creates in our ears the sense of harmony ; it is this interval that puts rhythm into sound, and brings music into the domain of the universal motions governed by the almighty Periodic Law. Rise of ocean waves, swell of music, our eyes and ears cannot apprehend anything except in periods. This is beginning to take shape as something structural in the terms of our apprehension of Nature.

Where do we now stand ? We find a variety of physical phenomena which move in various forms of waves impelled by something which of itself has no existence, although we cannot deny that we apprehend its results. What is it, then, that the waves carry on their bosom ? Something which appears as energy, as wind or as rhythm—yet whose very existence as such is unproveable. Eddington admits that "there are no pure waves and no pure particles"—the physical world only assures our senses of one thing, namely, that something is being radiated discontinuously throughout the universe, and seems to be carried to its predestined goals by something that is akin to what we call waves. But whether this energy spins

its way as does the spider its web, out of its own impetus, and does so by an intermittent activity, or whether it is being carried by something else is in no way certain. We call what reaches one spot from another spot a wave, merely because this is the easiest mode of expressing undulating, spreading action.

In waves of water it is easy to find the crest of the wave, but when it is a question of radiation its crests may appear now here and now there, but if we attempt to determine their actual position, we would arrive too late, they would already be elsewhere. All we can be sure of is a recurrent existence and non-existence. This is all we can accept as reality in connection with the physical world, and, so long as the quantum *h* remains the measure of these periods, it seems to be the creator of physical manifestation. Now if we imagine the scale of value that starts with dead lead, and leads through all elements, through living manifestations, through mind to something completely free from all physical trammels, completely intangible, spiritual if you will, which possesses no definable nor qualifiable entity at all, we must regard the quantum *h*, which is the mathematical calculus governing periodicity, as the formula which enables us to know of the existence of all this recurrent manifestation and non-manifestation, and therefore as the most vital piece of evidence that has so far reached our understanding.

But the existence of the quantum measure is still something subject to the human brain. Beyond it there may be that which is not measure, but measurer of these lumps that carry a chance of life throughout the universe. The mechanical interpretation of the world is falling more and more into disrepute, the principle of indeterminacy is seeing to that, and to-day the quantum *h* is said to be merely carrying "a uniform chance of energy." Eddington says: "It would seem that what the light waves were really bearing within reach of each atom was not a millionth of a quantum, but a millionth chance of securing a whole quantum."[1] It seems to me like one of those kaleidoscope puzzles sometimes given to children, which they are able to shake into various patterns without ever being able to determine what pattern will appear, only in the world of physics there seems to be some law by which, if these lumps of colour shake into just the quantum *h*, they appear as something to our senses, if they do not they pervade the Universe as parts of an immense and invisible Whole. In very truth colour seems the best simile: in the sun's corona all colours

[1] *N.P.W.*, p. 189.

are united, but according to the capacities or nature of the things around it, they select now this colour now that. The only thing that can be regarded as true—I will not use the word real, because we have too material an idea of reality—is the "uniform chance" of something turning up in periodic manifestation. In the intervals we must presume there is nothing. This is very difficult for our minds to accept, the intervals are so short between one emission and another pick up, that we see all forms around us continuously: that green wall or this brown table never vanishes, but I must admit that if I believe in this Law of Periodicity I must logically maintain that this table alternates wholly or in fragments, existing and not existing in turn, continually without stopping. In the intervals it is part of the universal chance, nothing of which anyone can assert it is either here or there. It is part of a Whole which is only broken up so long as things take form: a whole which contains the chance of all things: "That Transcendent was the potentiality of the All; this secondary is the All made actual."[1]

I think in conclusion we may safely sum up all that has been said so far regarding the visible and invisible universe, by saying that it is all a manifestation of some underlying Oneness which carries within its completeness a law by which it gathers its various parts into lumps of action, of which our senses and our minds which observe it, are also parts, lumps with all the rest. Whether we call what we perceive: waves or photons or rhythms, the same principle underlies all, and whether things are appearing or disappearing the principle still remains, we know that what has appeared must somewhere, somehow, reappear, and so Periodicity stalks through space-time.

If this law be something in the nature of the Absolute, however, it must be traceable throughout every form of living as well as so-called dead phenomena, for it would be impossible that an Absolute should be in one place and not in another, or be applicable to one thing and not to another. If it were so, it would still belong to the realm of the partial invented by the mind, the realm of what the Indians call Maya-illusion. It is certainly a bold assumption to make, to say one has found something of the nature of what lies beyond our whole universe. But if every fact bears it out one can but reverently bow one's head—and at the same time shout from the house-tops: This is Truth.

[1] Plotinus: *Ennead*, V, 4, 2.

CHAPTER III

WAVES AND LIFE

NOW that I have assured myself of the support of science, and obtained the most circumstantial evidence possible, for the correctness of my theory of Periodicity, I would like to regard it for a moment from the point of view of our ordinary everyday life. If, as I firmly believe, this law will, at some future time, be capable of supplanting the law of Moses, as the basis of our religion, it must govern the lives men lead as well as that which they observe in their laboratories. If the principle to which the entire universe is subject eventually enters man's consciousness, and is made the foundation of his life, it must become his religion, and everything else will be subordinate to it. Once this idea has saturated his consciousness, however, he will quite easily discover the consequent truths for himself! Music has always been pouring through the ether, but until we discovered a method of trapping the waves on which it travelled, we were entirely ignorant of the fact, and anyone who had asserted that we were surrounded by music from all parts of the earth would have been considered mad. Yet to-day the song of a singer in distant Warsaw is capable of teaching me, in a small village of southern Italy, the laws of the universe! Further, had anyone dared to assert that everybody (not only Saints) receives rays of something outside this sense world, from beyond this earth, a few centuries ago, he would probably have been burnt at the stake, whereas now no one would dare definitely to deny it.

It is not that these things never existed before, but merely that we were not evolved enough to apprehend them. To-day Jeans makes the statement that the universe is the thought of a mathematician; some voices are raised in protest: why just that of a mathematician is asked, but not: why a thought at all! Besides this, we must realise that from the moment we begin to say: you *and* me, one and one, we are starting

the rhythm of numbers that spins itself out of nothing into the farthest depths of space, and perhaps reaches the feet of that mathematician! Therefore if we see the whole universe revolving rhythmically in waves of radiation, liable to being measured, can we not open wide our minds, abandon our prejudices, and allow science to give us indications how we may further regulate our lives in order that they may harmonise with the laws that govern the universe, and so enter into a larger system, eventually perhaps that of the Creator?

Let us then proceed to examine the life of man as we have that of the atom, without any foregone conclusions about his being a higher species, or living as against dead material, just regarding him as an ant, if you will, happening to have been produced by this planet. And to this man, let us apply what we learnt from the atomic world. What, to begin with, is man composed of? Cells which form a body,—as protons and electrons form an atom—and mind, the equivalent of energy or action. We have here the same dual forces as are to be found throughout the universe, forming one Whole, which in this case is the human being. And this living entity exists by means of alternate periods of inhalation of oxygen and exhalation of carbon dioxide, which is operated, as we know, by the expansion and contraction of the heart. These occur with as precise a periodicity as does the expansion and contraction of the atom. The heart beats that set the time for these periods are like the rhythmic beats of a great engine, and between every beat there is the pause that gives the heart rest and makes life but another form of intermittent action. Without the alternate activity and rest the heart could not carry on its functions for a year, perhaps not even a day! Therefore here at the very first step we take in an examination of Life, we discover that the Law of Periodicity is responsible for its very inception.

There is another aspect of life which is equally interesting from the periodic point of view. We all know that in the average human being the body and mind grow, develop, increase in powers, till a certain degree of perfection and virility is attained, after which the system distends, decreases and the life fires get weaker and weaker till death supervenes. One might perhaps imagine that if neither illness nor accident were to occur, man might live forever, but this is not the case, for the living organism shows the same wave characteristics that we discovered in atoms. This is not an *a priori* conclusion

to prove my case but a scientific fact, as I think the following will show: "By means of careful mathematical calculations, based on exact and extensive data, Professor Robertson arrives at the conclusion that the cause of growth is the presence of a chemical catalysing substance given off by the cell and which determines its rate of multiplication. He shows how the curve of the cycles of growth in man and various animals corresponds with the curve of the normal chemical reaction of auto-catalised substances. He explains that: 'A chemical reaction may be brought to a stop in either of two ways, namely, by exhaustion of the substrate, or material undergoing transformation, or, on the other hand, by accumulation of the products of the reaction, resulting in the accelerating of the reverse action to the point of equality of its velocity with that of the forward action'[1] and argues that, since the material forming the substrate of nuclear catalysis is perpetually replenished from external sources owing to the consumption of food, the cause of the reaction observed in the cessation of growth and commencement of senescence *must be due to the accumulation of the auto-catalyst substance in the body.*"[2] This would prove to my mind that the causes of the body's decay are inherent in the very elements of its growth, and it acts in precisely the same manner as do waves of ocean or nebulæ and stars—as we shall see later.

It is truly astonishing how identical are the activities of all manifestations in cosmos, this output and indraw are everywhere the same, everything moves in a harmonious rise and fall, waves of being and not being, and life itself moves in periods that are certainly as definite as those of radiation, only we do not yet possess the secret of its quanta. On this same analogy, we cannot but presume that the energy we emit every time we exhale, or the mental energy we send out in thoughts, travels in waves until it reaches whatever is prepared to take it in, as the atom catches the quantum of energy. We know, for instance, that between ourselves and plants there is this give and take—why should it not be so with other things as well?

We in the West have not studied these facts very profoundly as yet, but in India it has been an accepted dogma for many centuries that life and non-life are only another such a system of periodicity. At the very root of all their mental training, and I do not think that anyone will deny that in this they are

[1] The chemical basis of growth and senescence.
[2] *In Search of Reality*, by J. E. Williams, p. 136.

pastmasters, lies the science of breathing: Pranayama.[1] To set the mind free from the bonds of matter, for the realisation of a spiritual understanding, the body, according to them, has to be put into perfect rhythmic relation with its surroundings. When the pupil is sitting in an upright position, the spinal column in straight line with the head, the breath has to be timed to a perfect and harmonious rhythm: count so much for the intake of breath, so much for the inkeep, so much for the output, and so much for the emptiness. In the beginning, 4, 16, 8, and 4 seconds are the respective periods; but the trained Indian can increase these to minute rates. By these exercises Indians aim at training their bodies to a condition of perfect harmony with the rhythm of the universe (which is comprehensible after what has been said of periodicity) which harmony leaves the mind undisturbed to escape from the bodily trammels and flow out into space or delve inwards into the inner core of Being. Until this perfect rhythm is obtained, all irregularities make of the body a discord, an encroaching element of disturbance to the mind.

Taking another branch of life, which confirms the Indian ideas, mountain climbers testify that on the regularity of their breathing depends their capacity to maintain their strength in the highest altitudes.

That Jesus knew this fact and used it, I think can be inferred without a doubt from that curious little sentence which seems to have slipped into the description of His curing of the deaf man: "He took him aside . . . and looking up to Heaven He *sighed*, and saith unto him 'Eph-pha-tha,' that is, be opened."[2] There would be no reason here for His sighing in the ordinary sense of the word, but, if we admit the science of pranayama, we know that deep breathing is the most efficacious way of gathering power, and a sigh or a deep breath are the same thing from the point of view of the observer. I hope to prove some day that Jesus must have known all the laws that govern the art of healing, as well as of much else that is only now being discovered by us, but I think it enough for the moment if we understand that a collecting of force by the healer, followed by its radiation directed on to the sufferer,

[1] I use the word "breathing" to express what is inhaled and exhaled in Pranayama, but I think much more is implied than the ordinary oxygen and carbon dioxide contents of bodily respiration. If this art of respiration is to form the foundation of the higher development of the practitioner, he must undoubtedly inhale and exhale some form of energy unknown so far, which is perhaps the life essence of the new condition of existence altogether—of which more anon.

[2] Mark vii, 33.

may play a vital role in our battles against disease. But of course until we recognise the importance of our intake and output of waves, we cannot be expected to learn how to direct them.

If I have so far succeeded in my attempt to make it clear that one or another form of periodicity exists throughout Nature, is it not easily conceivable that we also are transmitting waves, as the Indians affirm, during this rhythmic breath? By indrawing what they call Prana, that more subtle form of energy, accompanying the elements that feed our bodies, we feed our mental or spiritual life; and in emitting it, we increase the sum-total of good or evil radiation in the world. This Prana reaches us in periodic lumps, the amount and quality of which lie in the control of the trained breather, as does also their emission, which, like the quanta from atoms, is proportionate to the intake. So far we are unable to measure the quantity or gauge the results, but the day will certainly come when Man, realising these facts, will try to calculate the difference in the effects of a pranayama taking thirty-two seconds to every breath, and of that taking two minutes. There is certainly something here that is a very profound factor in human evolution.

If it be truly possible, and even necessary, that our bodies should eventually move in waves of another dimensional order, to that which they achieve at present, the science of breath must be the first fact to be considered in any effort to raise mankind to a higher level of evolution. It is quite conceivable that in one sense the body does act according to the laws of atomicity; but although its quanta are still undiscovered, I see no reason why this should mean that they are undiscoverable!

There is now a further point, which I admit is harder to prove, one step more removed from any knowledge we possess, but which is not for that reason inadmissible. Let us go back to the spectroscope for a moment. We see on it all forms of radiation, producing light lines and dark ones alternately. The light ones stand for the output of rays of any kind from the atom, the dark ones for the pause in between the emissions, during which the atom is imbibing energy. While it is imbibing energy there are no means of discovering where nor what the atom is, it must *be* since it is there the next instant, but of both sound and light waves, it must be admitted that when they are in the trough, so to speak, we cannot trap them. Wireless waves are the most salient example of

this fact: when the heterodining waves meet the ether waves in the trough, we have all experienced their habit of cancelling out altogether. The crest of the wave thus corresponds to the emission of the force which it seems to be the purpose of all forms of atomic life to project from themselves, "a photon of luck" Eddington calls it; and the trough is the pause, perhaps the rest between one activity and the next.

What connection has all this with the human atom we are investigating? Certainly a very close one. Let us apply some Giant's spectroscope to ourselves, what do we see upon it? Strange to say also lines of action and lines of darkness, lines which show the human atom spending a wealth of energy undreamt of by any other atom, and lines which show him lying dormant, refuelling his fires. Are not our entire lives made up of intermittent action? We spend during the day untold riches of energy, both mental and physical, we radiate them in other words on all around us. Then, during the night, we store up fresh energy in a condition which not even the ablest biologist in the whole world can exactly explain. What happens to our minds or spirits in sleep—no one can tell; the body continues its functions mechanically, and gets itself into the necessary rhythmic condition automatically, but in what relation the mind stands to it or to outside things we cannot know, because we are unable to register it. All we know for certain is that it imbibes new strength from somewhere, new *mind* energy, and that it obeys laws entirely unknown to our day consciousness. Time and space seem non-existent for it, since there are countless examples of so-called prophetic dreams, both important and totally unimportant, which make it appear probable that the sleeping mind registers facts in the future as easily as those in the past. It seems to me probable that in the act of imbibing, it also sometimes takes in the energies that go to making up future facts, just as in the daytime it emits energies that past experiences have created. Equally do spatial differences seem in abeyance in the sleeping mind, for which of us has not known those dreams which portrayed a long series of occurrences in space and which on waking have proved to have taken place both in their cause and effect during the shot of a gun or the slam of a door or the call of a person? And yet the most peculiar fact of it all is that although time in our sense, as the passage of something from absolute past into absolute future, does not exist for the so-called sleeping mind, yet when necessary it will register time more perfectly than in waking hours: no waking mind can be

so sure of doing a thing at a fore-ordained time, without reference to sun or clock, as can the sleeping one.

Further, the sleeping mind has selective capacities: the mother or nurse sleeping in the room of a sick child will not be roused by a very loud noise outside, yet will awaken at the slightest sound from the child. All these facts seem to me to confirm the view that the mind in sleep is in a state of absorbing or indrawing waves of some mind force, and that like the atom its quanta, it takes these waves *selectively*. It is not mechanically selective like the atom, for the mind is certainly of different texture, but selective as mind substance: it chooses the things that are relevant to it and absorbs them, whether we be conscious of it or not, and then spends these for us during the day, whilst we are emitting our white lines on to the Giant's spectroscope. If once we recognise these facts, shall we not eventually learn to manipulate our intermittent energies to best advantage? How can we suppose that colour waves, sound waves, light waves, radiation from material elements are spread all over the earth on ether waves, are spread through space from the materials of suns, and yet that the radiation of the mind which seems a higher, more perfect form of energy than any of these, just flashes during its little day and dies out, uncarried by any wave? This would seem to me a non-sense. Surely the waves of thought which the mind is continuously emitting are carried and spread as rigorously according to the laws of their being as are the waves of light, both obey the same system of intake and output, both must therefore obtain the same results: progressive radiation in all directions.

Here again we may turn to the mystics, and especially Indian ones, to learn something more about these facts. In Europe mystics have acted by accidental inspiration, in India they have developed the laws by which to handle the human mind-atom. Our Western saints have all had periods of fasting and meditation, when consciousness was unlinked from the body and this was voluntarily put into a state of lethargy resembling sleep, and in those moments all mystics had the experiences which gave them strength and power to exert influence and teach the truths to which their entire lives bore witness and which have radiated from their personalities long after their death. Clearly, from all that has been said, with the prostration of the body, the mind—or spirit if you prefer to call it so—may actively draw upon sources of power that are closed during bodily activity, and, which

are to be the sources drawn from, must be determinable by the condition in which living consciousness places the receiver. We know that the saint who leads a perfect life is able to draw forth all that is noblest from some source unattainable to ordinary men, to connect himself with the most highly developed spirits past and present, because his instrument is attuned to theirs, and thus able to catch the waves they set in motion; so equally must we suppose that the human devil in sleep catches the waves of others attuned to himself. According to the laws of atomicity we may only take in what we give out, and emitting good all day we shall take in the erg-secs with predominance of good when come the hours of our intake, and so, little by little, may we reach the state when we can tap the very shortest waves, those that come from the heart of Being. Indian mystics have time and again given evidence of their knowledge of these facts (although they might laugh at my describing them in this scientific manner) but beginning with wielding the breath or Prana to obtain poise and serenity of body, they have ended by entering "Samadhi"—world detached enlightenment, where their spirit can leave the body and re-enter it at will, being absent even for months. These facts have lately been proved by scientific investigation into the nature of the burial or incarceration of men for months at a time—which is often voluntarily undertaken by Indian ascetics. According to the laws of radiation, during the quiescence of the body, such people should set waves of spiritual energy in motion which should spread in all directions and definitely influence the lives of men—which is in fact what they profess to do. "The greatest men in the world have passed away unknown. The Buddhas and the Christs that we know are but second-rate heroes in comparison with the greatest men of whom the world knows nothing. Silently they live and silently they pass away: and in time their thoughts find expression in Buddhas or Christs. . . . The highest men do not seek to get any name or fame from their knowledge . . . they silently collect true and noble ideas, and others go from place to place preaching them and working from them. . . . They are the men who really know the power of thought: they are sure that even if they go into a cave and close the door and simply think five true thoughts, and then pass away, these five thoughts of theirs will live through eternity."[1]

I feel sure this is a true statement regarding the influence of thought, for action is an exteriorisation, a contraction of

[1] Swami Vivekananda: *Karma Yoga*, Vol. I, pp. 103–4. Collected Works.

thought into definite material cups; it is power centralised for a purpose; whereas sending out waves of thought has no limit and may reach the whole world. If ever a man could train himself definitely to use his body as an instrument, and regard himself as an atom radiating forces that must lead beyond the material universe—an atom emitting the most refined of all energies which the physical universe has yet produced, in which are to be found the first grains of something that is clearly a new factor in world evolution: the factor of abstract consciousness, he would then realise that he must in some way foster and develop this new and tender plant, if ever he is to have the new birth to which all mystics bear witness. A birth into a knowledge far vaster and more all-containing than any we dream of here, into a condition unrestricted by material limitations. There can be no doubt, though, that this could only be obtained by conforming to the laws which govern the universe and by using a knowledge of them not only to control the forces of Nature, but above all to control the forces of which man seems to be a first expression. Rhythmic movement, that is the first step, and then rhythmic intake and output of the mind powers, creating harmonies of the spirit, which may begin by ridding man of his physical boundaries, and may end by encompassing the depths beneath and the heavens above.

Jesus said: "There is nothing from without a man that entering into him can defile him; but those things which come out of him, those are they that defile a man."[1] That is the secret; what we *put out*, that governs the entire process, and over this we men are the first among living beings to be able to exercise control. The elements cannot choose what amounts of ergs or secs shall define their character or whether the ray they emit shall come out of the inmost heart of the proton or out of the circles of the electrons, or whether they should loose an electron altogether; in their case all this seems to be governed by chance, the chance pick up of photons, or the chance bombardment by other rays, etc. We human atoms have made an immense progress on the path, however, for we can choose what we shall emit and thereby prepare our organisms for the right intake. Let us, however, before all else learn so to order our periodic activities that we pulsate the right kind of radiation into space, for the more there is of that, the more frequently must the right quanta be picked up —"until the whole shall be leavened."

[1] Mark vii, 15.

CHAPTER IV

WAVES AND DEATH

I FEEL that the time has now come when we cannot proceed further in tracing the design of the great periodic scheme of the world without attacking the vexed question of the nature of death. My reader may object that death is the one thing about which we cannot claim to know anything at all, unless we go in for spiritualism—which I have no intention of doing. As an experience it is unquestionably one-sided, for, although we all have to pass through it, there are no means of registering it. I do not propose to limit my investigations to the question of human death, however, but shall pursue them into what is regarded as death in the nature of the world around us.

To begin with let me try to make clear exactly what I mean by death. The usual description would be, extinction of the individual hitherto known ; but if instead of extinction I use the words *temporary cessation,* which could equally apply to ionised atoms, plants in winter, or man, I think the subject takes on a somewhat different aspect. This does not imply eternal life, though, in the ordinary sense of the word—unless an endless chain of events be regarded as an eternal event. In any case, we must cease our clamour for continuity, neither I nor anyone else could claim to have found that, for it exists nowhere in the universe, and in seeking that, we are very cold children seeking for our thimble ! I must also admit at once that I am not in the least concerned with trying to console those who live in terror of death ! That is a question which everyone must decide for himself. If from what I say some people can incidentally find hope for their own survival, so much the better, but as far as I am concerned, I am only attempting to regard this extremely controversial question from the point of view of a dispassionate observer. The life of the universe is at stake—a somewhat greater matter than the life of a mere individual !

Let us, to begin with, review what we have learnt of what

might be called death in the inanimate world. In our examination of atomic life we came upon the great law of quanta. There we found that energy was imbibed and emitted by atoms in identical quantities, but a study of the stars, where atoms are continuously being bombarded by electrons or photons, shows that with every atomic encounter, energy loses something of its availability, radiation of its power. From extremely penetrating waves of short wave-lengths and great velocity, energy emerges at last in the long waves of light. The quantum is ever unchangeable, it is something in "the nature of the beast" that is altered. Something continues, but not exactly that which entered the atom: different patterns are woven at different times, but actual death, in the sense of extinction for ever, is nowhere to be found. Even on the hypothesis that the atom gets destroyed—which was long held to be an impossibility, and is only provisionally accepted as that which offers the best explanation of the tremendous heat in the interiors of stars, and of the powerful radiation continuously emitted by them—the radiation which was emitted by the destruction of that atom still lives. Nowhere can we find an absolute end in the whole long series of cosmic events. There are different configurations, but each is the heir to the last, as to-day is the heir of yesterday. And every one of these configurations might be imagined as causing a light streak on a giant's spectroscope; they would not make a continuous stream of light but vibrate in lines of being and non-being.

In elemental formations we find the same phenomena: one configuration alters gradually into the next, scattering its forces more and more as it proceeds; but whilst one element decreases in energy and finally dies down to nothing, before dissolving, it has given birth to another, according to the nature of waves. For example, let us take the life story of one of the elements on our earth. For every ounce of uranium there once was on this earth there is now 0·747 oz. of uranium and 0·219 of lead, and at the known rate of dissolution of uranium it has taken 2,000,000,000 years to accomplish this result. The path it travels is interesting: the first product formed by the dissolution of uranium is a substance half of which decays in a little less than twenty-four days; this breaks down into another, whose period of life is less than a minute and a quarter; the length of life of the next substance is estimated at about 2,000,000 years; two different products are then formed, namely, radium, having a period of 1580 years, and proto-actinium, whose period is 12,000 years, the following product

being actinium. Radium dissolves into the inert gas, Niton, which has a period of little less than four days, and the end of both series is "a form of lead, which so far as we know is not radio-active at all."[1] But although every one of these successive forms may be different from the last (what has been said of uranium equally applies to any radio-active substance), and although, of course, the products are quite different, the end is usually lead, yet there is something which connects each stage with the next and finally builds up a perfect Whole. "The atom of action seems to have no coherence in space; it has a unity which overleaps space."[2]

According to the law of entropy, which will only allow an ever-increasing scattering of forces, but never a building up, this process should be an entirely one-way action. It seems to me, however, that this is only true if we regard one set of phenomena as being the sole measure of all things. No one would attempt to deny that in so far as the physical universe is concerned, there is a ceaseless scattering of material, but as we see in everything around us that periods of decrease alternate with periods of increase, what increases need not necessarily be identical with what decreased (as was seen in the story of the break-up of radio-active elements), although it is obvious that they are not unrelated; we may rather presume that they are both controlled by one law, which decrees the periods of decrease and increase as well as the resulting effects. With the death of one kind arises the life of another, out of the womb of event No. 1 is born No. 2, then 3, 4, and so forth, each of which carries on a modified form of the last, and every new form will be found to be one step farther on the road to insubstantiality. Possibly it will be along these lines that we shall have to seek the re-concentration which entropists at present deny; but I shall go into that matter more fully later on.

For the moment I must content myself with referring to the production of life on this earth as briefly as possible, it being the supreme example on earth of my theories. Jeans says: "The planets are the only places we know of where life can exist. The stars are too hot; their atoms are broken up by intense heat. Nebulæ are in every way unsuitable, even if cool, solid bodies exist in them they would probably be so drenched with highly penetrating radiation as to render life impossible."[3] For the birth of life a special type of matter is required, and here we come to the most thrilling part of the whole story: "Primeval matter must go on transforming itself into radiation

[1] *A.B.C.*, p. 121. [2] *N.P.W.*, p. 185. [3] *Eos*, p. 85.

for millions of millions of years to produce an infinitesimal amount of the *inert ash on which life can exist,*"[1] and we now know that our earth spent nearly 2,000,000,000 years in so transforming herself, before she was cool enough, or dead enough, to carry mankind! If further we remember that, according to the law of entropy, all atoms that compose stars or elements must inevitably thus radiate themselves to ashes in course of time, it becomes not merely a possible accident but a most probable event, "for inanimate matter to produce life in due course when the environment is suitable." We may, therefore, conclude that the potentiality of life-production increases in direct ratio to the decrease of material bodies, and life then becomes the other side of a greater pair of opposites than any other in the whole universe. But without the final death of the active radiant matter into ash this new form of substance would never have been born.

Let us now consider this theory in relation to our common experience on earth, and we shall see that it holds good in relation to the whole world around us. What resemblance is there between the oak and the acorn, between man and the spermatozoa? Yet the great tree in its autumnal death produces the little acorn that shall rise to another life; man dies and leaves the life of the new generation. Even in the mental life of mankind is it not common knowledge that in order that any great idea should obtain footing thousands have to lay down their lives? Christianity and Islam are glaring examples of this fact. Wherever we turn we see that for everything that exists something had to lay down its life, one thing rises as the other sinks, there is one long alternation of so-called life and death, and there can be no hesitation in saying that our law of periodicity manifests in everything throughout the whole world. Be it in large things or in small, over a long period or a short one, this is immaterial, the main thing to realise is, that nothing can escape alternate action and reaction, and if life be one half of an action of this sort, then must death also play its part in the evolution of the whole, and it is no more an end, but becomes a link in a chain. And with this fact we reach the end I have had in view, the gist of the argument.

Among the things that surround us we find not only that the seed must fall to the ground and die in order to give birth to life, but that the gestation of the new life must take place in a darkness which we often regard as death—buried in the earth, for instance. In such darkness life may be preserved for

[1] *Eos*, p. 73.

thousands of years, as witness the seeds found in the tombs of the Pharaohs of Egypt, or the olive tree, which when dead and cut down springs again from the bottom. But besides these more special cases, there is the simple one of the yearly "death" of Nature: without the autumnal death, the winter's rest, we could never hope for spring. These are all manifestations of a pulsating or periodic activity. Are these pulsations perhaps quanta of life, the expansion and contraction of the atom on a larger scale? It certainly appears to be so. In every case there is a very palpable hiatus between one life and the next, the period of darkness, may this not also occur in the life of man? If it does, we may rest assured that we have made a correct diagnosis of the evolutionary movement in the universe and of the role of "Death" as the womb which carries the seed of new life.

Which brings us back to our world principle of Periodicity: is it not perfectly clear that it would be sheer madness to hope to fulfil our part in just one flash of radiation, which a single life may be regarded to be, whereas everything in the whole universe works by long periods of waves? If we consider human lives as atoms, absorbing and emitting mind energy, which makes of them something far more perfect and more important than atoms—which merely emit α or β or γ rays—these lives fit perfectly into the scheme of the universe. We are different to Nature because we have in us higher forces, but we are also part of her, and there is no need to regard ourselves as abnormalities. Nature sleeps or dies part of the year, and each year lives again. It may be argued that the same flowers or the same leaves never live again. No, but the tree does not start afresh: it puts forth new leaves on the stem that it grew the year before, the fresh crop lay in the seed which the flower dropped into the earth—its new life is made up of what the old threw out before it died. This is what the Indians mean when they talk of "the wheel of re-birth."

All Asia's millions east of Persia hold to the belief that we are bound to a wheel of birth and re-birth in matter—until *we can free ourselves*. Life and death have been to them, ever since we have any trace of their religious ideas, merely what the quantum theory in relation to atoms is to us. Jeans says: "By prohibiting any emission of radiation except in complete quanta, and by prohibiting any emission at all when there are no quanta available for dissipation, the quantum theory succeeds in keeping the universe in existence as a going concern."[1]

[1] *Universe Around Us*, p. 132.

Applying this to the life of men we find many things explained that before seemed incomprehensible. Why should so many young people die whose lives seem full of promise, whilst old and apparently useless ones are left alive, is a question that has long troubled mankind—why is it that so often that occurs which was so well described in *The Bridge of San Luis Rey* :[1] only certain people happen to be at a certain spot at a fatal moment, and everyone asks why they were picked out from among the thousands that might have been there ? Death seems to be a matter not of choice but of inexorable necessity : one person is ill and has everything done for him that human brain can think of, and yet he dies, whilst another has a far more serious illness without the means to obtain the necessary relief which science might afford, and yet he recovers.

If to all these facts we apply the human quantum theory, they become perfectly plain. Until there are the complete quanta " available for dissipation " life continues ; but whilst one may take three score years and ten to collect a " complete quantum," another may have collected his necessary quantum in early youth, and then radiates away, whilst many a small child may not have had the right quantum, and therefore goes on at once.

Further, the Indian explains that this *karma* which goes on from birth to birth is not picked up indiscriminately but can *only* be picked up when the right conditions prevail, that is, when I have accumulated my quantum of *karma* in this life and attained a certain stage, good or bad, at death I throw out this *karma* I have made for myself, and this will travel on in space until it meets with the conditions that fit it ; in the language of wireless waves, until it meets that which is capable of heterodyning the carrier waves which I sent out. Had the ancient Indian Rishis known of radiation and ether waves they might have done what I am doing now : applying the rules of one system to the other, the similarity of the two is so extraordinary. Seeing that they, like we, were studying the science of Life, and came to the same results in their observation of men as we have in ours of the physical world ; and as there can be no doubt that they in their line were adepts as great as scientists are in ours, we can but assume that both we and they have run up against something that is absolutely fundamental to the existence of the universe.

Next to this picture of reincarnation handed down by Indian adepts for over 2000 years, I would like to place the new scien-

[1] Thornton Wilder.

tific explanation of radiation from the stars, for I think Indian and scientist should meet here on common ground, the ideas of the one explain those of the other. Eddington describes the path of waves of radiation as they are ejected from the hot centres of the stars, in terms that hold good for the path of all energy throughout the universe, and his words can serve as the text for all I have to say on the subject of the life and death of man. "The atoms and electrons for all their hurry never get anywhere; they only change places. The ether waves are the only part of the population which accomplish anything permanent. Although apparently darting in all directions indiscriminately, they do on an average make slow progress outwards (from the centre of the star). There is no outward progress of the atoms and electrons, gravitation sees to that. But slowly the encaged ether waves leap outwards as through a sieve. An ether wave hurries from one atom to another, forwards, backwards, now absorbed, now flung out again in a new direction, losing its identity, but living again in its successor. With any luck it will in no unduly long time (ten thousand to ten million years, according to the mass of the star) find itself near the boundary of the star. It changes at the lower temperature from X-rays to light rays, being altered a little at each rebirth. At last it is so near the boundary that it can dart outside and travel forward in peace."[1] If these facts are placed side by side with what I have been saying about the Indian belief in reincarnation, we can get a very clear idea of the path and destiny of human life. Can we not easily conceive it possible that the human spirit is just such a moving ether wave, bearing its quantum of energy, "losing its identity and living again in its successor"; altering a little at each rebirth? We cannot allow ourselves to be biassed in our judgment of this vital matter by the obstinacy with which Europeans cling to their personalities, any more than we should allow ourselves to be influenced in our scientific estimates by anyone who insisted on asserting that unless one could watch the photon or electron all the way from one atom to another, it could not be said to exist! We should be doing something which Eddington says "does not correspond to anything in nature" in attributing to this particle of energy we call spirit, a kind of determinacy which would make it unalterable for ever.

If further our mind stuff be "now absorbed and now flung out again," altering a little at each rebirth, changing in some lower condition of life from the un-mind-ful animal to the conscious

[1] *St. & At.*, p. 27.

human being—palæontologists regard mammalian life as the third terrestrial dynasty—is *homo sapiens* not possibly the fourth, the stage when the life-ether-wave changes from X-rays to light rays? I am here undeniably treading on very precarious ground, and in all probability the hair on the heads of both priests and scientists will rise in horror over my inferences. That cannot be helped, however; I can but express what I not only believe, but also see as the future religion of humanity.

I must refer to one last point in atomic theories, which may bring us enlightenment with regard to the true interpretation of human life. We have considered electrons and ether waves, what about the famous particle of matter, how does it stand in relation to ourselves? I think we may accept it as practically certain that we are not corpuscles of matter at all but merely waves of something. Speaking on the subject six years ago, Eddington said: "There does seem to be serious evidence that in the scattering of electrons by atoms phenomena occur which would not be produced according to the usual theory that electrons are purely corpuscular. . . . Long ago such phenomena ruled out all purely corpuscular theories of light; perhaps to-day we are finding similar phenomena which will rule out all purely corpuscular theories of matter."[1] And four years later that event seems appreciably closer when we consider Jeans' description of matter and radiation as "two kinds of waves—a kind which goes round and round in circles, and a kind which travels in a straight line."[2] In relation to human atoms, we might conceivably allow that our physical bodies may be of the first kind, our mental, or conscious power of the second.

If, then, we accept everything from radiation to man as a system of waves (of course I do not mean waves in a material sense), we can certainly feel ourselves linked up with the entire universe, for in the very nature of waves lies the curious characteristic that they are interrelated with everything around them: there is not a single wave in the ocean that is not influenced by the attraction of the moon, which in its turn takes its little place in the movement of the solar system; this in its turn is guided by the gravitational forces in the galactic universe, and these movements are one and all subject to what is now regarded as the texture of space itself, which causes all things in it to "curve and wriggle about among its hills and valleys"[3]—waves even here!

[1] *N.P.W.*, p. 202. [2] *Mys. Un.*, p. 77.
[3] Jeans: Henry Sidgwick Mem. Lect., November 26, 1932.

Nor does any wave in this universal sea exist without influencing every other, for even when a wave of energy breaks on the shores of material "events," its power is not stayed, for are not these being continually built up or eroded by waves of energy (or photons), and ultimately their fate is decided thereby. If even the last bulwark of matter, namely electrons, are also nothing but wave phenomena, we must undoubtedly include ourselves in this vast periodic motion, and there is no better way of expressing this new conception of living beings than as quanta of some hitherto unregistered form of energy, moving in waves of being and not-being. I see our lives as pulsations of animate quanta inhaled by the physical-body-atom for a time, therein collecting the impetus that shall eventually throw them forward on their journey, until in the final "last death," when matter can dissolve no further, there will come the moment when the animate energy will dart outside the entire material universe and sink into Infinity unlimited.

CHAPTER V

WAVES AND CIVILISATION

I

IN attempting to draw a picture of the Law of Periodicity, I have so far described its course through the realms of physics and the phenomena of life, but the story of man as he lives on earth has not yet been considered from this point of view. The next question that arises is undoubtedly: in how far does the Law of Periodicity enter into the existence of mankind? is there any means of regarding our race from the standpoint of the Giant with the spectroscope, and of seeing humanity as the white and dark stripes, or are we unable to regard ourselves from so "outside" a point of view? If ever the Law of Periodicity is to be brought home to man however, and the knowledge of its existence affect his daily life, it will have to be proved that the course of his existence is ruled by it as is everything else in the universe.

In studying the life history of mankind, we can undoubtedly discover the rise and fall of ripples on the face of the ocean: in the ebb and flow of civilisations for instance. Did not Chaldea, Egypt, China, Greece and Rome, to take a few examples out of many, rise from small insignificant people to world power, each in their time, and sink again to nothing? And as each nation in turn rose to power, was not its range of influence and its domain greater and more widespread at the zenith than was that of the last? But this rise and fall, this periodic formation in the structure of mankind, has never been studied as such, therefore, as I consider this form of periodicity as important as any other, I should like to point out the main lines of history regarded from this aspect so as to enable my readers to pursue studies in this direction for themselves.

If we consider the history of a race or a nation, as a whole, we shall very quickly discover a concentration and dissipation of energy as in all other universal phenomena; even though it be of a different nature, the Law of Periodicity will

connect it up with all the rest. And, in studying the rise and fall of nations from the periodic point of view, it will be necessary to make clear the causes and effects of these waves, how and why they arise, what produces their decline into the trough. I shall attempt to consider the history of mankind as I did that of atoms, whence it should appear to our eyes as the evolutionary process of some new form of radiation, shall we say the emission of δ rays ?

Fortunately historical research has developed to such a nicety in these times that we are almost able to take a God's eye-view of any past period, and reconstruct an epoch covering hundreds of years, as if it were a period of our own lives. Time, in this case, is merely as long or as short as we choose to consider it. The 300,000 years of the life of mankind measured by the duration of one's man's life is very long, measured by the 2000 million years of earth life, it becomes quite short. In any case, when its span becomes part of a universal law, it is something to be accepted, not questioned : the occurrence in space-time carries its own measure, inherent in its nature of occurrence. Further, waves of ocean, of ether, of radiation, each have their own spans, i.e. periods and frequencies, which no man may attempt to direct or modify, all that can be done is to note them and give the mathematical formula for the various species, and when we find in human civilisations a regular rise and fall we can but conclude that they belong to the same category of phenomena.

The waves in civilisations have not yet received the attention of mathematicians however, perhaps because they have not been regarded as serious waves so far, but merely as theoretical ones, but if once we can bring ourselves to regard human group phenomena as a form of radiation which we may call *life radiation*, as opposed to the light radiation of all inorganic matter—we may find that here the importance of calculating the wave length is of even greater value than is that of calculating that of any other wave in creation. For here our free wills might eventually alter the course of evolution and speed it up, with incalculable consequences to the destiny of mankind.

In order to understand the periodic rises and falls in the story of nations let us cast a cursory glance over the course of history from the earliest times until to-day. It is now a recognised fact, I think, that civilisations have run in waves over the face of the earth, but no one has ever attempted to draw statistics as to the length of time of the increase and

decline of nations. I do not think there is much doubt, however, that there is here some periodic law which we have accepted blindly. Certainly all nations have "fallen" from the same causes: effeteness born of so-called over civilisation; softness born of ease and luxury in the governing classes, of lack of incentive to work in the labouring ones. Upon which follows a wave of conquest by less civilised people, steeled by lives of struggle, battle, hardship of every description, by people we consider of a lower order but who are, from a physical point of view, a more virile, tougher animal, more fit to carry on the race. And the cause of the conquest has ever been the same: the glamour of riches and ease, the power and grandeur of the civilised have been the bait that caught the "barbarians," together with the need for expansion. In these facts, if we study them more closely, we shall undoubtedly find the manifestation of a law which controls the human race and to which the individual pays his contribution, without realising that his actions are not merely the immediate reactions to time and place, but contributions to the ultimate function of his kind.

In order to appraise this function at its proper value, we must observe mankind over a long period, and watch the course of what I may call a complete event in the motion of racial waves, just as we have attempted to do in the scientific world. With men as with atoms, it is not on the uncertain activities of individuals that we may test our theories, but on the laws of averages. If we can watch a certain ebb and flow in the past life of the race, depending on certain conditions which arise again and again, and lead to certain identical conclusions, we may feel fairly certain that when we observe these conditions forming once more, they will inevitably in the course of time, lead to the same results. The same and yet not quite the same: the earth turns round the sun in the course of a year, but when it has reached the first of January once more, the solar system has moved on its course and the sun is not at the same spot as it was last year. Something alters every time as a race makes a new beginning, but unerringly the rise and fall of civilisations carry the tide of humanity onwards to its predestined end.

To return to our simile of the sea, we may watch waves rise and fall in a steady flow, but to an observer at a distance, there is at the same time an advance, even though the man floating on it would realise nothing thereof. And as the waves approach the shore, there is less and less difference between

crest and trough, and their periods follow upon one another more and more rapidly. In the pace of the tides of men we may observe identical phenomena. Whereas once, the course from trough to trough took very nearly a thousand years, now it may take six to seven hundred, and in some future time, the rises and falls may follow one another in such quick successions, that the heights and depths will hardly be distinguishable—but that day is yet far distant, the condition of all mankind must have evolved into a state as yet undreamed of, before that occurs !

Our only chance of understanding these things properly is to seat ourselves metaphorically on a high mountain, and from thence to look down at the life of mankind : from that vantage point we must pick up the course of some particular wave and study its progress from first to last. After that we shall be able to recognise the symptoms of the same phenomena in other waves, and reconstruct their past and predict their future paths. And thus shall we follow the rises and falls in human waves, that make up the flow and ebb of the entire race as such, which must finally end in the trough of a dead race and the start of a new wave beyond this human one.

But we must not mistake ripples on the waves for the main stream—of course here as everywhere there are small ups and downs—but the broad main stream invariably affects not one nation alone but the whole world of its time. It is like a spiral nebula, its influence spreads in ever wider and wider circles until it reaches a point of supreme power, then at the peripheries it begins to form the small independent lumps that weaken the central construction, and undermine the whole fabric, which will then sink back into disorganisation and become the prey to chaos whilst the wave of might and power rises elsewhere.

Nothing valuable is to be learnt from generalisations, however, facts can only be ascertained by working from the particular to the universal, for which reason I should suggest that my reader takes the story of some one civilisation—the Roman for instance—and studies it solely from the point of view of a periodic process. But whilst concentrating on the story of one great people, it should always be born in mind that this particular racial experience is in no way unique, it must in no sense be regarded as something peculiar to itself ; were that so, it could never become an example of the Law of Periodicity. If we pick out the history of Rome, we must never lose sight of the possibility of discovering the same

forces, acting along the same lines in the history of China, or of Egypt, or of Great Britain for instance; only by this means can the story of the rise and fall of any one civilisation exemplify a universal process acting in human affairs. Regarded in this way, and applying scientific methods to the study of history, I think that in time it should be possible to discover in this science not only a kind of archæological interest, but indications of the present and future course of events in our present civilisations, and to diagnose the symptoms of their rises and declines. The paths of comets can be foretold hundreds of years in advance, there is only the slightest possibility of any alteration in their courses. The process I am investigating is, possibly, equally unalterable; I feel convinced in fact that were we but sufficiently enlightened, we should be able to predict historical evolution with the same measure of precision.

I am no historian and cannot pretend to write history, but, in order to facilitate my readers' research into historical periodicity, I should like to give a few brief notions of the salient points of any history, say the Roman, visualised from the point of view of my new science, in order that they may be easily recognisable in further research into these matters, and form a definite starting point.

II[1]

Tradition represents Rome in the beginning as a small hill town consisting of a few square miles of territory at deadly feud with its nearest neighbours, and ruled by kings that were nothing better than the latter day robber barons of the north. But when Rome became an organised Republic, at the beginning of the sixth century B.C., there began a conflict, inherent in the nature of the growth process, which carried her to fame and world dominion, namely, that between patricians and plebeians, which same conflict is plainly discernible later, in the history of England, the signing of the Magna Charta being the first triumph of our "plebeians." The struggle between these two great parties was in reality a struggle to obtain control of the state, and as one faction after the other attained supreme power, its claims thereto lay in making the state ever more glorious and prosperous, either through force of arms or laws, and every success gained by the one or the other meant so much greater fame or prosperity for the nation,

[1] For all the historical facts on which this section is based I am indebted to the article on "Ancient Roman History" by Henry Stuart Jones in the *Encyclopedia Britannica*, vol. xiii.

made the wave of power mount higher. But what is characteristic of this and all wave processes is, that across the surface of the greater wave there are small rises and falls, ripples which help to pile up the main structure, and in the four hundred years after we first trace her history, Rome went through a series of successes and failures, increase followed by decrease of power, the enemy at her walls at one moment, she spreading into Asia Minor the next—only the triumphs were always more definite, more significant than the defeats, and out of her failures Rome learnt how she might rise greater and stronger than before. It is one of the most interesting facts in the rise of all great civilisations that they always seem to *reculer pour mieux sauter*, which is perhaps the characteristic that most distinguishes them from the smaller unimportant national waves, which we may regard as mere ripples on the surface of the general tide of mankind.

In the course of all her rises and falls during those first four centuries, Rome's power steadily increased, however, until finally she made herself undisputed mistress of Italy, and here it is essential to remember (for we may find a parallel in the construction of other civilisations) that her rule both over Italy and later over the countries of the Mediterranean, was not the absolute rule of conqueror over conquered, but remained, in form at least, a confederacy under Roman protection. The Italians were not the subjects but the "allies and friends" of the Roman people. We have examples of the same relations among the peoples of the British Empire to-day.

Having secured the Italian peninsula, the Roman arms spread further afield, and from the moment when she finally crushed Carthage, her most serious rival, in 204 B.C., Rome's control of both eastern and western Mediterranean was assured. From this point to the culmination of her power on the accession of Julius Cæsar, about two hundred years later, the form of government in Rome altered completely, according as the necessity arose; first a Republic, then rule by the Senate—much as in the United States to-day—this in its turn was superceded by that of conquering generals, until one, greater than the rest, took the power into his own hands and made himself supreme ruler of the Roman world.

The perpetual Dictatorship which Cæsar arrogated to himself after his crowning victory of Munda in 45 B.C. was a contradiction in terms, and a repudiation of the constitutional government, which had made Rome great; from the moment

when he seized the treasury on his triumphal entry into Rome till the day of his death, he recognised no other authority throughout the Empire, and the title of "Imperator" which he adopted was intended to express the absolute and unlimited nature of the imperium he claimed, although he did not actually abrogate the old constitution. Cæsar, like his successors, professed to hold his authority by the will of the people, but Senate, Assembly and magistrates were in reality all subordinated to the paramount authority of the Dictator (is not Rome to-day retracing her footsteps?) and this subordination was more complete under the rule of Cæsar than even under that of Augustus. It seems unquestionable to my mind, that Cæsar's reign was the culminating point in the wave of Roman civilisation. The only reign that might dispute this claim is that of Augustus. But Augustus merely followed where Cæsar led the way, he was a successor, and, however great, such can never be the same as the originators of new orders. On the day when Cæsar assumed the crown of laurel in the sacro sanctity of Rome herself, he undoubtedly carried Roman history to its supreme climax, and thereby closed her first period in a halo of power and splendour such as had never been known to that day.

But apart from the wave of Roman history, even as a man, Cæsar stands as one of the high lights in the evolution of mankind, he is undoubtedly one of the greatest figures the world has known, a genius whose influence is felt even to this day. He stands in the eyes of all, past and present, as the most perfect type of all the virtues of ancient Rome, he is in a sense the Emperor of Emperors. Logic may claim that Augustus was a wiser ruler, that the Empire rose to greater prosperity in his reign—there are undoubtedly many reasons for preferring him; but our eyes will always turn to Cæsar, and our hearts give him their allegiance. He seems to have united in himself all that is most significant in the Rome that preceded and produced him, and most glorious in that which followed after. On the one hand he was a great soldier, a conqueror, a leader of men, the prototype of all that Rome had stood for up to that time; he certainly brought the wave of conquest to its crest. But on the other hand when he assumed absolute power, he put an end, once and for all, to the conditions that had been the foundations of Rome's greatness, and altered the aspect of the Roman world. He thus undoubtedly opened the way to one of the grandest civilisations mankind has ever known, for Rome henceforth

dominated the world by right of being the most enlightened nation of her time. But as no wave may remain at its crest for more than a breathing space, it is clear that in starting her on this new path, Cæsar had made Rome take her first step on the path that must one day, as yet far off, end in the trough. He was undoubtedly both an end and a beginning, he was the old and the new world in one—and died for his idea. Had he been content with a Triumvirate, or with pro-consular power, he would have been one among many great Romans, but his reign would not have been the unequalled moment that it was in world history. Cæsar dared break with all tradition and rise to supreme and solitary heights, and even though his triumph ended in an untimely death, Rome was changed once and for ever—the hour-glass had turned. But this is only as it should be, if history enters the ranks of periodic functions! And as this question was the main reason of my enquiry, I think it is now time to detach myself from the story of Rome *as a nation*, and, standing outside of her national aspect, regard all we have learnt so far from the point of view of its eventual conformity to the Law of Periodicity.

In so doing, what do we perceive? A wave of power, beginning with the ripple of a small hill town, like so many in Italy to-day, growing ever higher and spreading itself from century to century in ever wider circles till it finally encompasses the whole civilisation of its day, sweeping up everything around it into the mountainous wave of its greatness; whilst the continuous competition for supremacy, be it political or national, steels its people in the fires of battle and brings out what is best and fittest for the progress of the race. And we watch not only this great breaker rising steadily, but we also see little waves rising and falling across its surface: rise, then fall with the sack of Rome by the Gauls; rise, then fall in the second Punic war; rise and then fall with Sulla, etc., but Romans like Britons later, always rose when they seemed most annihilated, to efforts that carried them to ever greater heights. Are these not, both in great and small, clear examples of the Law of Periodicity? It is truly one of the grandest spectacles one can witness—it is, in its way, as grand as the rise and decline of stars, to see this rise of the wave of humanity from nothing to world dominion in the course of five hundred years: a wave that takes that long to rise, counted by the time measure of human lives, truly gives us, by its homogenity and irrevocableness, a sense of mankind's being caught in the

wheel of a law which every individual act does but obey and feed at the same time.

But there is another aspect of this movement which, with our knowledge of the working of the Periodic Law, we shall immediately recognise. There are in the forward motions of the civilisation wave two coincident actions to be observed: the centrifugal and the centripetal. Whilst on the one hand we watch the wave spreading over wider and wider territory, gathering up all the adjacent nations in its stride, and sweeping outwards in ever-wider circles—at the same time the forces are converging at the centre until, from the many: Senate, Tribunes, Magistrates, Assembly, there is first a concentration of power in the hands of the Senate, later three men rule alone, and finally comes the supreme assumption of power by the one. The first movement corresponds to that of entropy, the scattering, characteristic of all wave motions; the second is the concentric building-up, incidental to all growth, and carried by the current of these two actions we attain the crest of the wave. The rest is easily anticipated; if we remember how our Law worked in its relation to the physical world, and observe how true it has been to itself all through this fresh instance of its action, we cannot doubt but that it will continue to be so to the end. A few seconds, a few years, a few light-years, a few ten millionths of seconds, it is all the same, the wave pauses at its crest for what seems to us various lengths of time, but for what is in reality only the pause in itself, before it rolls over and sinks into the trough. We shall now follow this wave on its second stage: that of decline.

In order to understand the forces that broke Rome's colossal organism, and sent it on its journey of decay, which decay seems an impossibility when considering its greatness under Cæsar, I shall be obliged to turn back for a moment. No periodic movement starts with a burst at any particular instant, as we must realise by now. The seeds of one period are always inherent in the nature of the last, even though latent, but when time and circumstances are ripe they come to fruition. It is clear therefore that the seeds which eventually caused Rome's downfall must have been planted several centuries before she reached her prime.

During the two last centuries of the rising wave, whilst Rome was being transformed from a republic into an empire, the structure and composition of Roman society had completely altered. Until this time, Roman victories had been largely due to the powerful conservative forces by which her institu-

tions were preserved from decay. Respect for the *mos majorum*, or ancestral custom, imposed an effective check on the desire for innovation. Though personal religion in the deeper sense was foreign to the Roman temperament, there was a genuine belief in the gods, on whose favour depended the greatness of Rome. Above all, the healthy moral traditions of early Rome were maintained by the discipline of the family resting on the supreme authority of the father—the *patria potestas*—and the powerful influence of the mother. Finally the institution of the censorship, backed as it was by the force of public opinion, provided a healthy deterrent to any deviation from the accepted standard of morals. But all this was changed by the influence of Greek civilisation with which Rome first came into contact in the third century B.C. through Magna Grecia. At first the results of this contact with the older and more brilliant culture of Hellas were on the whole good. But at the same time the "new learning" was a disturbing and unsettling influence. The Roman citizen was confronted with new doctrines in politics and religion, under the influence of which the traditional fabric embodied in the *mos majorum* fell to pieces: a revolt set in against the discipline and self-control imposed on all Romans until that time, and a craving for individual advantages and distinctions took their place. The Roman nobles learnt the art of rhetoric, and the Roman capitalists the art of money-making from the Greeks, and both took full advantage of their new knowledge. Among the lower classes, contact with foreign slaves and freed men, with foreign worships and foreign vices, produced a love of novelty which no legislation could check. Even among the women there were symptoms of revolt against the older order, which showed itself in a growing freedom of manners, and impatience of control, the marriage tie was relaxed, and the respect for mother and wife, which had been so powerful a factor of the Roman standard of morals, was grievously diminished. Had not the public morals been undermined by all these influences the republican system would surely have been able to put up a far stronger resistance to political revolution than it did.

Further, the small landowners, who, in the history of all countries, represent the most stable and conservative part of any community, were sinking deeper and deeper into the mire under the pressure of accumulated difficulties. The Hannibalic wars had laid waste their fields and thinned their numbers; the heavy burden of military service pressed ruinously upon them; and in addition they were called upon to compete with

the foreign corn imported from beyond the seas, and with the foreign slave labour purchased by the capital of wealthier men. Farming became unprofitable, and the hard, laborious life, with its scanty returns, was thrown into darker relief when compared with the stirring life of the camps and the frequent largesses and gay spectacles in the large towns. In writing these words it seems to me that if I substituted the word "Roman" for that of "British" Empire, and made some comments on the conditions prevailing in England to-day, I could not express it more truthfully than in the above remarks—and I feel convinced that the same causes must inevitably produce the same results, or rather, be the symptoms of the same period in the course of this wave.

Once established, however, the Roman emperors made every effort to stem the tide by blinding themselves and the town populace to the facts outside, and by attempting to invest Cæsarianism with the mantle of deity, which lent it the appearance of continuity and eternal stability. This could not arrest the coming cataclysm for very long, however, and in the second century A.D. the first signs of the coming decay became perceptible to all. When Hadrian, for the first time in Roman history, surrendered conquered territory, preferring a less scattered and more controllable domain, around which he constructed a system of permanent *limites*, or frontier fortifications, these fortifications were more than mere land *limites*—so long as Rome was increasing, fighting, growing, she never knew of any frontiers that could arrest her, never needed any fortifications to mark her boundaries, knowing that these were only temporary until she should push them a few square miles further forward. Once the Romans recognised the necessity of fortifying what they possessed, it meant that they knew they could spread no farther, and even doubted the capacity of their arms to defend what they already had. The tide had turned definitely and for ever! And, in fact, henceforward Rome's wars were no more offensive, but merely defensive—a losing battle, as it eventually proved.

There are besides this many other signs of growing weakness in these peaceful reigns of the Antonians. In this period the centralisation of authority in the hands of the princes was completed; the Senate ceased to be an instrument of government and became an Imperial peerage; the restricted sphere of administration left by Augustus to the old magistracies was still further narrowed. All these changes, although in some degree beneficial, brought the attendant evils of excessive centralisation. Although this system is not injurious in the hands of

vigorous rulers, it proves fatal under men who have lost the ancient virility of the race in the inactivity of a life of pomp and splendour. The reforms of Augustus had given free play to powers still fresh and vigorous—the ceaseless labours of Hadrian were mainly directed to husbanding such strength as still remained. Among the symptoms of incipient decline were the growing depopulation, especially of the central districts of the Empire, the constant financial difficulties, the deterioration in the character of local government, and the increasing reluctance exhibited in all classes to undertake the now onerous burden of municipal office. Besides this, from all parts of this vast Empire which contained so many heterogenous elements, men of all kinds and races flocked to the centre, and settled in Rome, bringing with them their traditions and customs, which eventually fused with those of the city of their adoption. This cosmopolitan society was composed of so many discordant elements, that a common patriotism was hard to foster, and doubly hard when the autocratic system of government prevented men from aspiring to that true political distinction which is only attainable in a self-governing community. The organs of civic life slowly became atrophied, political interest died out and the whole burden of administration as well as of defence fell upon the shoulders of a bureaucracy which proved unequal to the task.

As for the question of morals, it is difficult to make any assertion in this respect with regard to a nation, but it is certain that the thirst for amusements—games, shows, races—undermined the erstwhile strict adherence to duty, the rigid self-discipline which had made Rome and Romans great ; instead, a general moral laxity set in, and religion lapsed into a worship of Power, with a large admixture of mere superstition. These conditions were undoubtedly fostered by the policy of despotism, which always aims at securing cheap popularity with the proletariat. At the same time, we know that underneath that glittering surface a religious movement was brewing, brought from the East by foreign merchants and slaves, which, although still of little consequence, was undoubtedly one of the forces working for the weakening and disintegration of the Empire ; it was indeed to prove itself so powerful a force, that eventually it vanquished emperors and warriors, and undermined the whole structure of the Roman world. Thus did this great material wave end in the emission of an insubstantial power of the spirit, as the atom ends in the emission of radiation—another proof of its pertaining to the realm of waves !

It took the Roman Republic nearly five hundred years to reach her zenith, and from the periodic point of view it is interesting to note that from crest to trough there was a period of an almost identical length of time, and the sinking movement exhibits the same characteristics as the rise : under one general movement of decline there were small ripples of rises and falls on the surface. Rise under Marcus Aurelius, for instance, decline during nearly a hundred years of chaos and disorder after his death, during which the Alemanni, Franks and Goths invaded her territories; and although Rome rallied under Gallienus' (260–268) successors and regained much of her lost territory, the preceding storms had told with fatal effect upon the general condition of the Empire. The old established culture and civilisation of the Mediterranean world was rapidly coming to an end, and the mixture of barbaric rudeness with Oriental pomp and luxury which marked the courts of even the better emperors, such as Aurelian, was typical of the general deterioration. His reign was only one of the rises that seem to arrest the fall, but are in reality only a breathing space, an eddy in the torrent.

The emperors from Diocletian (280) onwards were autocrats, in theory as well as in practice, for that emperor had finally reduced Italy and Rome to the level of provinces, while Rome ceased to be, even in name, the seat of Imperial authority. However, for over a century after the accession of Diocletian, the Roman Empire succeeded in postponing the final catastrophe, but there were plenty of signs that the end was at hand. Barbarians filled the places hitherto proudly and exclusively held by Romans : the classes from which the supply of soldiers had hitherto been drawn were so depleted that Julian led Gothic troops against Persia, and the army with which Theodosius defeated the tyrant Maximus in 388 contained large numbers of Huns, Alans and Goths. And once Rome was constrained to look to barbarians for her defence, it meant that these could dictate their terms, and must eventually overrule those they protected, whence it could only be a very few steps to their open seizure of power. In 451 Rome and the Christian West were only saved from being subjugated by a heathen and semi-barbarian conqueror, by the Visigoths, who rallied to her side and defeated Attila, but thirty years later, on the death of Orestes, when the barbarian mercenaries proclaimed their leader, Odoacre, King of Italy, he decided to dispense with even the nominal authority of an emperor of the West, and place Italy and the western provinces on a level with all their

neighbours. And that act marks the final trough of one of the grandest waves of civilisation the world has ever known.

But, as is the nature of all waves, this wave also dissolved into radiation, the radiation of Rome's mental legacy of laws and her spiritual legacy of the Christian religion, which so long as she was great and powerful were but a part of a much greater structure, but at her death became the torch that must be kept alive at all costs, the quantum of civilisation which must be caught up by a further ionised national atom.

I have treated an immense subject such as the history of the Roman Empire very cursorily, I am afraid, but my sole object has been to give my reader a sense of what I mean by waves of civilisation, the course they take and the main reasons which conduce both to the rise and fall of this species of wave, that we may be able to recognise the symptoms in other waves. And, in the interest of conditions prevailing in our world to-day, I have given more space to the nature of the fall than to the rise, it being more apposite, it seems to me. In any case, I hope that the little I have been able to say may serve as an example for the study of past history, and a prognostication—and is it too much to hope, forewarning ?—of the further evolution of the history of mankind. Any question as to the how and wherefore may be referred to the history of Rome. I feel we can not only observe the law of periodic rise and fall in studying this history, but, by placing ourselves at a vantage-point from which we may study it, as we study the lives of bees or ants, it becomes possible for us to understand the general process of mankind waves. On the basis of my outline of Roman history, we English may be able to diagnose our present period of development, and predict what lies in store for us during the next few centuries ; there are enough signposts to point out the way! Rome, like nebulæ (as we shall see), dissolved when her size became unmanageable, and as with those, the scattering began at the peripheries, where nations detached themselves to form new and independent units, as matter does to form independent suns. Has this process not already begun in our immense and unwieldy Empire ? Further, are we not faced with the same internal problems as was Rome in the last centuries of her power : the decline of agriculture and the agricultural population ; the migration of the rural population to the cities ; the growing thirst for luxury among the rich, and for the excitement of games, in which only one or two per thousand can take an active and healthy part, among the populace ; the slackening of family ties, especially the marriage ties ? These and

many others are surely symptoms that our wave is repeating the process which plunged Rome into the trough. But whether a knowledge of the course on which we are embarked can help us to avert it is open to question. If, as I believe, this wave, like all other waves, belongs to a process of nature, then of course nothing can alter it—except if humanity were to alter, of which there is little hope at present. That also belongs to a process which must take its course, and of which I shall have more to say later in this work.

But as it is fairly easy to discern what nation is at present in the decline period, so also does it seem to me clear that there is one which bears all the marks of the rising wave: a nation which is still controlled by the *mos majorum*; where the individual is still subordinate to the state; where ancestor-worship is vested in parental authority, and where strict discipline, and self-sacrifice, are the unwritten law of all citizens, both male and female This nation is also spreading her power slowly but surely; she has had, and will continue to have, setbacks, but as was seen in the history of Rome, these should only be an incitement to further effort. When, by the absolute self-immolation of her men on the altar of duty, Japan took Port Arthur, with every conceivable odd against her, she put her foot on the first rung of the ladder.

And further, is it perhaps possible to foresee the end of these waves of civilisation? In reading history, we may see that each time the wave of power rises to its crest, it spreads over a wider field: Rome ruled over the European and the Western Asiatic world of her time; Great Britain has ruled over large portions of Asia, Africa, Australasia, and carried her banner even into South America; on an ever-increasing scale some future wave should sweep up the whole of Asia, Europe and Africa—over half of the whole population of the earth—in its swell.

And when this subsides? Here let us remember the Law of Entropy. If over half of the earth's population sinks into disorganisation on the dissolution of the wave last suggested, eventually a wave must arise which shall embrace the whole globe—perhaps a black wave?—and when that subsides there will be little left of mankind; what had been of value would have radiated itself out in mind-energy, and what remained would merely be chaotic, energyless ash.

I cannot pretend to predict the *quantity* of human waves that must rise and fall until this end be accomplished, that must depend on many things that are incalculable, chiefly on how

much virility there is still left in the race. When Rome fell even her civilisation was small in comparison to the whole earth, largely populated with "barbarians," who were physically strong and capable of putting fresh blood into effete nations; but when Great Britain falls, her civilisation will have carried the love of ease, the desire for maximum comfort at minimum effort, the thirst for luxury and leisure to all parts of the earth, owing to the facility of modern communications—even Japan has begun to be infected with it—the day will inevitably come in some hundreds or thousands of years when the world will have to look to the black races for young, fresh, physical powers. The white man's effort to keep them apart is perhaps caused by an instinctive dread of this!

All these are of course mere speculations, no one can know anything for certain, but one may be allowed to draw inferences if one knows there is a Law that invariably develops on certain lines: the waves must succeed one another until earth life, in its various material forms, organic and inorganic, has reached "thermodynamic equilibrium." There is, however, one thing resulting from the entry of mankind into the framework of the universe that makes all the difference, namely, the birth of mind. Something has here entered into the most complex form of material life which, in all its descent from primal chaos to planet, never seems to have been there before. Later when we shall trace the course of the greater cosmic wave, this mind power will fall into its place in the periodic evolution of the Whole, and we shall herein discover a new wave at its birth. I only mentioned the fact here lest my reader might imagine I had led him to the cul-de-sac of extinction of all things, with the disappearance of mankind from off the face of the earth. As may be seen from what follows this is not my purpose in any way, but I think we must learn to regard mankind in the right perspective, not imagining ourselves to be either the supreme goal of creation, nor a mere nothing doomed to destruction—in a sense we are both, but in order to understand this, we shall have to attack the subject from a different angle altogether.

In what I have said so far, I have merely desired to show the various classes of waves which govern the life of this earth, and to give my reader the key to the "Periodic" vision of existence. I think I have now said enough to enable him to examine anything he chooses, with eyes trained to see the Law of Periodicity shining through appearances. This has been my sole ambition, for I shall now demand of him a

much wider vision, and, unless he had learnt to see periodically, he could never have been expected to follow me through the more fantastic issues that are at stake. There may be much that will seem to be mere wild speculation, but so long as it is regarded as the most immense wave conceivable to man, there is at least the similarity between it and our ordinary, familiar waves, to link it up with the world we know and accept. And this thread we must hold fast to the end—by so doing we shall undoubtedly see light.

PART II

EXHALATION AND INHALATION

"Now it is units that give birth to number and increase it, and being decomposed are taken back again into themselves."

About the common mind.

G. R. S. MEAD: *Thrice Greatest Hermes*, Vol. II.

CHAPTER I

FROM NEBULÆ TO ASHES

I

ONCE upon a time, so long ago that the date is lost in the dimness of the past, some holy man said: "This He! the imperishable One, by alternately wakening and slumbering, revivifies and destroys this whole movable and immovable creation,"[1]—thus making what is known throughout the East as the "day and the night of Brahm," or God. Seeing that, although year by year man is ever discovering more of the "how" of creation, but that the "why" remains as dark as ever it was, I am not running counter to any scientific knowledge by assuming firstly an imperishable One, and secondly suggesting that He might also have a vast breath or alternate day and night which would be the prototype of the periodic movement that manifests throughout all creation. Something so vast as one cosmic period in which every form in the universe were but as the rise and fall of ripples on the ebb and flow of a tide is almost impossible to conceive. And in an attempt to work it out, it is often difficult not to lose oneself in details and forget the complete picture—forget the forest in looking at the trees—but now I hope I have said enough about all kinds of periods for my reader to be able to enter with me into the rhythm of the greater period of the "slumbering and wakening" of the One. It would certainly have been impossible to expect anyone to realise the Period of the All-One had he not first realised my point of view about periodicity.

In describing the universal law, the first step was to find out if it could be applied to all things in the material world, or if only a few responded to it; in the latter case it could have been dismissed as a conception created by the human intellect in answer to its own need. I think I have duly proved, however, that this does not apply, but as I am setting out in search of the source as well as the container of all things, it must be absolutely

[1] *Laws of Manu*, v, 57.

clear that anything that might even remotely be suspected of being the thought born of the wish, could not be admitted.

My reader must try to see things in the perspective that might be had from a balloon's eye view of the universe, that is with perfect detachment, and it is necessary for this purpose that he should exercise discrimination as well as imagination. In order to make myself clear, I shall have to describe abstract causes through the medium of concrete things: in describing the evolution of stars and universes, I shall in reality be talking of the breath of God. This may sound a bit queer, but at the point we have arrived at now, this idea is as plausible as Jeans' idea of the universe being the thought of a pure mathematician.[1] If, as Jeans further admits, man has not yet got into touch with ultimate reality, perhaps when we shall have found one law running through the whole world of our experience, and further traced it into matters so vast that anything on our small earth is not much larger than the atomic world in comparison, we may hope at last to see the first streak of the dawn of Truth. When our Periodic Law has become a pendulum-swing that carries the entire universe in its stroke, we shall have to accustom ourselves to think in terms entirely outside formations as we know them, and consider all we touch upon in the light of movement in something that more resembles pure mind, energy or spirit. The small periodic movements we have hitherto discovered to be inherent in all manifestations on earth will be like the various pulsations in the body which are subject to, and evoked by, the great central pulsation of the heart. But this central immense period will not be anything substantial like heart beats, or rise and fall of waves, but rather something in the nature of heat waves, or what scientists call "probability waves"—something as remote from our senuous apprehension as is Truth or Fate. God's breath or period, if it exists, must be behind all things pertaining to the physical world, in the hinterland of Laws and Principles.

I have dwelt overlong perhaps in the realms of earthly phenomena, but this was the easiest way of introducing my readers to a very intricate subject; now that we have at last reached "in the beginning," we can stride forward towards our goal.

There are two ideas concerning the conditions of the universe that are fundamental to all scientific theories, both in physics and in astronomy at the present time, namely: (*a*) the theory

[1] *Mys. Un.*, p. 132.

of the cosmical constant, and (*b*) that of the space-time continuum; but I believe we shall eventually discover that these are not two independent events, but rather two aspects of one and the same thing. In the first part of this work we had a great deal to say about the Law of Entropy, which governs the conditions of the small scale universe, that of electrons and protons; the cosmical constant is the same kind of process governing the large scale universe, that of spiral nebulæ. The Law of Entropy decrees that the universe is in a continuous condition of running down from a state of more perfect organisation into one of disorganisation and dissemination. It is obvious, therefore, that if we remount such a scale, we cannot but arrive at a time in the long past when once the disorganisation was organised and the scattered gathered in. All our greatest scientists are forced back on to this fact, and certainly it does seem impossible not to carry entropy back to its logical commencement. "Travelling backwards into the past we find a world with more and more organisation. If there is no barrier to stop us earlier, we must reach a moment when the energy of the world was wholly organised with none of the random element in it. . . . Moreover this organisation is admittedly the antithesis of chance."[1] It is something that could not occur fortutiously; Jeans says: "The odds against the present division of the total energy of the universe into atoms and radiation being fortuitous are, as it happens, precisely the same as the odds against the universe having reached its final stage: indeed the mathematical specification of a fortuitous state is precisely the same as that of a final state, and this enables us to dismiss the fortuitous conception of the universe as being entirely out of the question. Everything points with overwhelming force to a definite event or series of events of creation at some time or times not indefinitely remote."[2]

The latest cosmological theory of the universe being in a state of active expansion in all directions is but another case in point; "the continual expansion of the world raises the same kind of question of an ultimate beginning as has been raised by the continual increase of entropy in the world."[3] Based on Einstein's theories, the universe is regarded as a sphere originally in a state of perfect equilibrium, containing matter but no motion. This point is undoubtedly the same as that when "the energy of the world was wholly organised," and we must attain it with the same amount of mathematical

[1] *N.P.W.*, p. 84. [2] *Eos*, p. 55. [3] *Exp. Un.*, p. 55.

precision. For, if all the spiral nebulæ have been found to be receding at very high velocities both from us and from one another, according to the scale of cosmical repulsion, if we remount this process to its beginning, all must once have started close together. "Since the outward speed of the nebulæ is known by observation, it is a matter of simple arithmetic to compute the date when they were close together in a congested crowd,"[1]—provided they were always receding at the rate they are moving now. That is, however, hardly likely, for these outward speeds have probably been gathering impetus as they proceed, consequently the cosmical repulsion must have been much less forcible in the beginning than it is at present; in any case it seems clear that the same kind of force is at work with regard to the largest phenomena in the universe as to the smallest, both are equally scattering from a once concentrated or equilibrated order into continually increasing disorganisation, hence there seems little doubt that the force at work is a "cosmical constant."

Having determined a primal condition from out of which our universe as we know it arose, we come inevitably to the crucial point of the whole conception: what started it moving? Some scientists imagine this event to have been a chance upset of the original, perfectly balanced, equilibrium in space. How this occurred is a matter of pure speculation. Eddington admits he prefers the idea of a universe neatly balanced like a pin on its point, which, as there is nothing outside it, would by some process inherent in itself—decay?—eventually drop either to its A side: i.e. a process of expansion, or to its B side, i.e. a contraction to a condition "as near a point as quantum conditions would allow";—as we know, it fell by chance to A! But it seems to me that there would be no reason for an "Einstein universe" in a perfectly equilibrated oneness made up of "matter but no motion," to change in any way. We earth beings cannot escape from the idea of decay or change because everything around us is enmeshed in that process, but in a universe concentrated and motionless, there would have been no source of change of any kind, therefore when a movement did start, the initial impetus cannot have originated in motionless matter, but must have been started by some kind of pressure from outside, or from something being propelled into it. Abbé Lemaître agrees with Jeans in preferring the idea of an original event of creation, which he compares to fireworks. His theory is that there was a violent projection

[1] *Exp. Un.*, p. 86.

on to, or through, a space condition reduced to a point, which projection was strong enough "to carry it past the Einstein state so that it is now falling down towards A (expansion) as observation requires."[1] This seems to me the explanation that is most in keeping with the data we possess at present, and the one that is least open to objection. But whether we think like Eddington or like Lemaître, we are in either case faced with the question: why did the universe start on a process of expansion rather than of contraction? I do not think the answer to this question can be a mere matter of chance, I believe it to be a necessity inherent in the constitution of things, for if the first motion had been one of radiation, "which is more effective than matter in exerting gravitational attraction," the primal oneness would have been started on to a path of contraction, and by now there would be nothing at all! But as it was a condensation that must have occurred when first protons and electrons combined to form neutrons, which later built up hydrogen, and hydrogen helium, etc., such a condensation, however slight, must have exerted a pressure on the space around it, and started the process of cosmical repulsion which has been going on ever since. To sum up the condition of the universe as far as it is known to-day, I think it is safe to say that at one end of the scale "we have Einstein's universe with no motion and therefore in equilibrium. Then as we proceed along the series, we have model universes showing more and more rapid expansion until we reach de Sitter's universe at the other end of the series. The rate of expansion increases all the way along the series and the density diminishes; de Sitter's universe is the limit when the average density of celestial matter approaches zero. The series of expanding universes then stops, not because the expansion becomes too rapid, but because there is nothing left to expand."[2]

Here we seem to have stumbled up against both a beginning and an end of all the worlds we know, but I shall leave the question of the latter for the moment. What was most important to me to discover was: what might have occurred in the beginning of the universe as we know it, whether there was any reason for believing in a beginning at all, or whether things had just existed in a continuous process of change in the same materials. Having established a beginning of some kind however, it seems to me that we reach a point where science and religion are hurled into each other's arms! If once the

[1] *Exp. Un.*, p. 59. [2] *Exp. Un.*, p. 47.

universe was started into movement out of a static condition, whatever cause we call in to account for this fact, it is difficult to escape from attributing it to some cause outside the Einstein "motionless matter." And whether we regard that motion as having been started by a Creator who created "the heaven (space) and the earth (matter)," or by an inflow of some form of energy from without, the result is the same! Both science and religion agree about a primal unity—God or nebula—what happened after that is matter of pure speculation on one side and of cosmological investigation on the other, but I do not think there can be any doubt that one will eventually furnish a logical explanation for the visions of the other—and both will be right!

To turn to B: the space-time continuum. After all that has been said, the question that naturally arises in the mind of any thoughtful person is: if from atoms to nebulæ everything is in motion, what was the nature of that which contained matter but no motion? Scientists are not agreed as to the respective merits of a space-time continuum or of ether, as the basis of the universe, but if the ether be "a frame of reference . . . its existence being just as real and just as unreal as that of the equator, or the north pole, or the meridian of Greenwich"; as being in short "a creation of thought, not of solid substance";[1] and if in Minkovsky's words: "space and time separately have vanished into the merest shadows, and only a sort of combination of the two preserves any reality," which reality is at present the framework of the universe, I think the difference between the two conceptions is merely one of terminology, and we may regard "space-time" as that wherein occur the events that we call universe as we know it at present—inclusive or not of ether, that is immaterial. Regarding the nature of this space-time continuum, scientists are discovering something new every year, but the idea most prevalent to-day is that of an expanding sphere, the curve of which may either make it into a closed inflatable system, something like a rubber balloon, or into a thing of sausage shape, either closed or not closed at its extremities; the most usual description is a closed "pimply" sphere (the pimples corresponding to the galaxies which form local excrescences in space), *with all its middle left out.* Some scientists have raised the objection that a "pimply world" could never originally have been in the state of equilibrium which the cosmical constant requires, but the researches of Prof. N. K. Sen and

[1] *Mys. Un.*, p. 105.

Lemaître have lately shown that the one does not exclude the other. In short we may conclude that we, earth, are being carried along by a condensation formed in a vast curved space, wherein the only time dimension, *for each individual condensation*, is marked by the rate at which it has travelled from its original state of union with all other members of the species, and by the speed of its flight from all its "neighbours" in space. And this brings me back to my original contention.

As we see, there are two great laws regulating the nature and activities of all things in the universe; one seems to be the positive, the other the negative side of the picture; one marks the rate of movement pursued by all things across the static condition of the other. And together, these laws proclaim this movement to be one of dispersion and distension. What is there in this idea that might exclude the cosmical constant plus the material particles (whether atoms or nebulæ) which it controls, being regarded as a vast breath scattering in all directions? Is it not possible that this dispersing force we call "entropy" or "cosmical constant" is carrying forward and outward the very substance of that breath, namely, electrons and protons, which are the elemental forces of the universe; is there anything in all this that excludes the idea of an immense exhalation from one original source? If entropy rules all motion in the universe, and this motion leads to a final state when there will be nothing left but "motion and no matter," and if then we imagine a breath controlled by the rate of its expulsion from the lungs, with a fixed term of output, but no recognisable limitation of expansion, my suggestion which, at first sight, might seem the fruit of a disordered mind, begins to assume a definite shape. (I am, of course, only speaking of lungs metaphorically, I do not imagine the cause of the cosmic breath to be the same as man's in any conceivable sense of the word.)

I must here frankly admit that the most puzzling thing about my idea of God's breath is its possible relationship to the space-time sphere. But I think even this will not be an obstacle any longer if we cease thinking of atoms as one thing and space as another. If on the one hand "matter and radiation are found equally to resolve themselves into waves";[1] and if on the other "Nature . . . has not left anything to betray the frame (of space) which she used. Or perhaps the concealment is not any particular subtlety; she may have done her work without employing a frame of space. . . . They (frames of space) are a

[1] *Mys. Un.*, p. 43.

method of partition which we have found useful for reckoning, but they play no part in the architecture of the universe" ;[1] it seems to me it then becomes necessary to regard the space-time universe and its contents as one sole entity which has so far escaped all definition, and may just as well be the supreme wave of God's breath *as such*, without any decomposition into space, time or atoms. As we exist we cannot very well deny that we, and therefore the universe, is something ; but supposing it is all nothing *in itself*, but only the *process of expanding concentrations*, we must come very close to a conception of the breath of God being all there is anywhere, *space being of the substance of that breath and not something within which it occurs*.

Breath of any kind is undoubtedly a periodic action, however, and it may well be objected that it is difficult to discover any trace of periodicity in these our excursions into cosmology, but this difficulty arises solely from an incapacity to realise the periodic nature of only one period within which we happen to be existing. In order to understand periodicity on the immense scale we are now considering, I had to make sure, to begin with, that anything was occurring in space which might even remotely resemble either an ebb or a flow in a tide more vast than anything ever imagined before. And although what has been discovered looks at present more like a uni-directional process, lasting exactly one period from start to finish—and certainly *no physicist or cosmologist* (notice these words are in italics) has ever yet discovered any sign of a re-collection of the materials which are dispersing throughout the universe—yet I am sure my reader will agree that, in the composition of the universe, all sciences must play their part, and we may discover later that where two sciences come to an end of their resources, others may take up the thread. In these matters, as Eddington admits, it is a question of discovering the theory that best fits all the facts in question. Therefore there is no harm done if, for the moment, we assume that our periodic law still holds good, and make the widest application of it that our human brains are capable of.

Alternate increase and decrease are inherent in the nature of this law, as we know, and in following the course of the universe, we have so far made sure of the first stage ; if we eventually discover a condition following upon the final scattering and dissemination of the physical universe, in which energy were behaving in the reverse sense of that pursued by

[1] *N.P.W.*, p. 27.

matter: concentrating, moving in a centripetal instead of its present centrifugal action, behaving in such wise that eventually all energies must be re-collected into a supreme Oneness—of an entirely insubstantial nature—could we not then recognise that there is, behind all manifestation, a condition that puts out in matter in a first period, and in a second one draws inwards in some at present unimaginable form of energy, thus forming two vast pulsations which are hardly to be reckoned in figures?

Perhaps one of the chief obstacles in the way of our conceiving this form of periodicity lies in the difficulty of realising anything on so vast a scale, we instinctively think it impossible that the laws which rule universes should be anything like those on our earth! If we consider our sun, which is probably seven to eight million million years old, and yet young compared to certain other heavenly bodies, and which, although it is radiating itself away at the rate of 250 million tons a minute, would still be much as it is now in another million years; and, if we realise at the same time that these millions are nothing when compared to the necessary reckoning in megaparsecs[1] which we come up against in dealing with nebulæ—we obtain a slight hint of the time that must elapse from the beginning of a wholly organised universe to its final end in complete dispersion. And as the period of inspiration up to a final re-collection must be of equal duration, the entire process assumes dimensions which, even were they calculable, would not be conceivable! To obtain even the dimmest perception of the proportions of God's ONE expiration and inspiration, it would be necessary to conceive the idea of a period to be calculated by more volumes than are contained in all England filled with 0's following after this number 1—obviously an impossibility! But however far removed it may be in the dawn of time, there must once have existed a moment when that vast expiration began and the first ripple of movement coursed through space. Even though its source remain for ever hidden —*that it was*, is the only thing that matters.

Once, not so very long ago, this idea would have seemed monstrous: Breath of God, thick lumps of matter like stars and universes—preposterous! But things have altered since then, the tendency of modern physics is to resolve the whole material universe into waves and nothing but waves . . . "forever solid matter melts into insubstantial radiation; forever the tangible changes into the intangible"[2]—if we accept that idea, why not the possibility of its being the breath

[1] 1 megaparsec = 3·26 million light years. [2] *Mys. Un.*, p. 77.

of God? "The super-system of the galaxies is dispersing as a puff of smoke disperses. Sometimes I wonder whether there may not be a greater scale of existence of things in which it *is* no more than a puff of smoke,"[1]—or a puff of breath, is there any great difference between the two? Only the difference between a phenomenon of life and one of death, and, as there is no rule against it, I prefer to consider the universe as a natural event in the course of a periodic process rather than as the closing act of a preceding conflagration! I shall therefore proceed to tell the story of God's breath as best I can, and in the end, perhaps it may seem the simplest thing in the world, the only possible way of explaining all things in the universe we know.

II

Pursuing the cosmical constant backwards, we have found that once upon a time there must have been a uniform Oneness with no parts in it, nothing that could have been separated or distinguished from any other, just all one single undivided substance. But from out of this substance (or propelled through it) must have arisen the first wave, for if the whole universe we know be nothing but waves, these must have had their origin at the birth of the physical world out of the primal Oneness. If we discover waves or, what to me is the same thing, periodicity, running through everything in the universe to-day, I cannot but think that, whatever may have started it, whatever may have been its nature, the first motion in the primal nebula must have been discontinuous; all subsequent waves must be the sequels of the first ripple that was stirred into action in that world of "matter without motion," which has been travelling outward in a continuous succession of rises and falls ever since. Let us, once more, imagine ourselves in the place of that Giant with the monumental spectroscope, sitting at his table outside space-time, he must have had a considerable shock when his instrument suddenly registered its first white streaks—the first waves of nebulæ! These would have been the first symptom of waves so vast that, compared with them, all other waves would be as the waves of radiation are when compared to those of the sea! But even those are as nothing when compared to the great tidal wave that is sweeping all things outward towards the ebb of worlds in the ocean of thermodynamical equilibrium, and whose flow shall be when, in the words of the Book of the Dead, "I enter in and I come to Life."

[1] *Exp. Un.*, p. 13.

Here we are necessarily faced with the question: How was the first wave started in the Primal Nebula, in "matter without motion"? Was the "definite event or series of events" an infusion of the matter composing our universe from somewhere outside it, or did a commotion of some kind occur within the sphere itself? As everything in these matters must be in the nature of conjecture, let us try to discover the theory that best enables us to imagine how our space-time universe was built up. Eddington says that the "initial mean density of matter in the universe $=1{\cdot}05.10^{-27}$ grammes per cu. cen.—1 hydrogen atom per 1580 cu. cen."[1] Further is the astonishing fact that although we imagine inter-stellar space must be exceedingly cold, we are told that the temperature of the inter-stellar cloud cannot be much below the temperature of the hottest stars, that is about 15,000 degrees. Now 15,000 degrees is the temperature which corresponds to the individual speeds of protons and electrons, therefore it is undoubtedly to them that we must look for the first generation of heat of some kind. That they must have been in motion from the first is hardly open to doubt considering that the atoms most frequently found in inter-stellar space are helium atoms, and in order that these might be built up, it was necessary that four of the original hydrogen atoms should meet. At first sight such meeting does not seem anything very improbable, but in the atomic world the 1580 cu. cen. that separated one hydrogen atom from another is a vast distance, Oslo and Rome would be close to one another in comparison! Yet that they did meet is unquestionable considering that helium can arise from no other source. It is obvious, however, that no meeting could ever occur between static bodies in space, in fact it is common knowledge that there could be no body of any kind in the universe without speed, for "matter is speed and as substance embued with speed is also energy, matter must be considered to be a particular form of energy"[2]—even when it is only the first promise of matter, i.e. protons and electrons.

We may therefore feel pretty certain that once they existed, the original hydrogen nuclei must have been in motion, but it at once became, not only a forward motion, but also one of rotation which has continued ever since. According to Einstein: "it becomes possible to regard rotations unrestrictedly as relative motions too, so that the centrifugal field around a rotating body can be interpreted as a gravitational field

[1] *Exp. Un.*, p. 68.
[2] Gustav le Bon: *Naissance et Evolution de la Matière.*

produced by the revolution of all the masses in the universe about the non-rotating body in question."[1] But if we remember Einstein's idea of the original universe of matter without motion, it is difficult to imagine how the masses in the universe should have altered in any way in their effect upon one another —assuming that protons and electrons were originally part of those masses as cherries and orange slices are part of jelly. Providing nothing new occurred, there was no reason for anything to start rotating round any other! But if, on the other hand, space had to be compressed to make room for the entrance of extraneous vestiges of matter, and it in turn pressed in upon these non-rotating new arrivals, this would explain all the further construction of the universe. If we follow Jeans, and admit that "the type of conjecture which presents itself somewhat insistently is that the centres of the nebulæ are of the nature of 'singular points' at which matter is poured into our universe from some other and entirely extraneous spatial dimension, so that to a denizen of our universe they appear as points at which matter is being continually created,"[2] is it not possible that at these points protons and electrons were projected into the static Einstein space and were promptly started rotating by the compression of surrounding masses?

Further, I do not see that there would be anything in all this that might mitigate against my idea of the great Breath. As was seen above the "masses" are after all nothing massive, only something as insubstantial as the equator or our thoughts, and space-time which surrounds the inpouring breath is a condition as such, not a thing. The only reality seems to lie in those atomic particles which are exhaled into space from elsewhere and build up the universe! Which facts, being completely compatible with what we know of the exhaled breath and its ingredients, my idea of God's breath seems to become less and less fantastic as we proceed! Could not the same words be applied to a vast breath as Eddington applied to the material world, which he describes as beginning in a perfectly organised state and ending in what is called "thermodynamical equilibrium"? And as for its final state, "we anticipate that there will ultimately be a complete running down of the universe by a slow degradation of energy into unavailable form,"[3] but whether it be unavailable for all forms, or only for the forms known hitherto, remains to be seen. "The end is not yet."

Our next step must be to find the link, if any there be,

[1] Freundlich: *Einstein's Theory of Gravitation*, p. 55.
[2] *Ast. & Cos.*, p. 329. [3] *Exp. Un.*, p. 123.

between the primal helium and giant nebulæ. Any solution of this problem must be in the nature of hypothesis, but, physicists at the present time consider it probable that the several hundred thousand nebulæ which we perceive lying "like silver snails in the garden of the stars" are entirely composed of atoms derived from hydrogen, and if this be so, it is likely that the foundation of all nebular and other cosmic aggregations is to be found in the first formation of helium out of the four hydrogen atoms, all others having more than four!

We now have before us a picture of atoms moving both forward and in rotation, collecting into new atoms and worlds, but there is yet another factor that makes a growing condensation of the material in the universe yet more explainable. It is a well-known fact that speed and heat are concomitant in the formation of mass, for instance, if we take the temperature of an ordinary room, where the molecules of air are moving at an average speed of 500 yards a second; "if we heated it up to 40,000,000° the speed would be just over a hundred miles a second," and the air would long since have condensed to matter. If, then, we could discover that in the formation of helium, in primal atomic activity, there were some source of heat, further condensations in space must become purely a question of time. And, wondrous to relate, the required heat provider has been found, for it has been shown that when the four hydrogen atoms collide, the new element does not absorb the entire energy of its predecessors, but 0·03 gr. of energy escape, providing, as Eddington says, "a prolific supply of heat."[1] Consequently, as we proceed up the scale and reach the terrifically radio-active elements in the nebulæ, more and more heat is generated. It is perhaps something of a vicious circle if atoms generate heat, and heat generates mass, but if we conceive that first emission of 0·03 gr. of energy, and imagine this gathering to itself further atoms as it passes on its way, perhaps even upsetting, by ionisation, the balance of other atoms scattered through the universe, it is then no more necessary to admit any but the first intervention of what we call chance, in the aggregation of atoms to build up helium the rest follows automatically.

There is, however, one further suggestion consequent on Lord Rutherford's recent experiments, which I have not seen advanced anywhere, but which I feel I cannot ignore. Is there anything to prevent our supposing that, previous to the meeting of proton and electron to form the hydrogen

[1] *St. & At.*, p. 101.

atom, when the primal ingredients of the nucleus, or proton (of which at least two are known) first combined, this might have started the first ripple of heat coursing through space—is this perhaps the source of the famous cosmic ray? The radial motion of the original nucleii must have been comparatively slow, emitting very little heat, but as they collected electrons and finally formed the first atoms of hydrogen, their rate of rotation would have increased systematically, according to the principle of angular momentum, and concomitantly, heat and mass risen in degree. Further, the passage of such condensations through space would have formed a kind of current which Einstein calls the "puckers in space," to which all matter, from nebulæ downward, is finally reduced. These puckers gathered volume as they proceeded, until they collected into whirlpools, whose gravitational action drew all stray particles into themselves. (We are still speaking of things that cannot as yet be called matter.) Thus, step by step, did protons and electrons grow into the vast nucleus of a nebula!

Jeans' description of the construction of spiral nebulæ entirely bears out all we have been saying. According to him, when the gas of primal space had gathered sufficient molecules together to form a denser mass than that of surrounding space, it could be regarded as the first condensation in a gravitational field. "It can be proved that if a condensation is of sufficient extent, the excess of gravitational force may be sufficient to inhibit scattering altogether. In such a case the condensation may continually grow through attracting molecules into it from outside. . . . If once conditions are favourable to its growth, a condensation goes on growing automatically until there are no more molecules to absorb. . . . The greater the extent in space of a condensation, the more favourable conditions are to its continued growth, small ones merely dissipate away."[1] Being very small indeed, how then did the first gathering of hydrogen atoms not dissipate away? This was, however, not a "condensation," but a new element, a molecule, and condensations took place when very many of such molecules had gathered together, emitting much heat and travelling with speed, causing in short a good deal of a disturbance in space. It may be objected, however, that such a condensation, however large for those early times, could not effect but a very small area. But Jeans assures us that: "Such an argument overlooks the way in

[1] *Un. Ar. Us.*, p. 196.

which the gravitational pull of a small body acts throughout the universe. . . . So long as gravitation acts, no disturbance can be confined to any area less than the whole of space . . . even the smallest disturbance must set up condensations, although these may be of extremely feeble intensity."[1] Therefore, when hydrogen grows into helium and emits heat, and rotates, it is clear that the necessary "disturbance" is created throughout the universe, and condensations ensue. From that point to the emergence of nebulæ is only a matter of time. And thus have we witnessed the birth and growth of a wave of dimensions which our wildest dreams could never have suggested.

But, of course, the question is: is this a wave? Will not these condensations go on growing and spreading forever? What is to stop them and send them hurtling into the trough? Nothing—unless it were of the essential nature of waves to do so, and these were to be no exception, thereby giving proof of their identity! And it looks much as if this were the case, for, in tracing the course of nebulæ we suddenly run up against an unexpected limitation: when condensations have attained a certain mass, they can, for no apparent reason, go no further, and they start on the backward swing, the period of devolution in which we see the nebulæ to-day. It may well be asked what causes these limitations, but at the present stage of our knowledge, it is impossible to give any definite reason. All we know is that the force of gravitation "collects together nebulus and chaotic material, the force of radiation pressure chops it off into suitably sized lumps."[2] Apparently such lumps cannot surpass a certain measure; beyond that, matter seems to refuse to hold together, it necessarily dissociates and starts on its entropy path. The point of equilibrium is reached at about 2000 million tons—perhaps this is the spatial mass relative to the speed of light, since radiation is responsible for the then ensuing decrease or contraction of the nebula? This idea is confirmed by the fact that Einstein regards the speed of light as an "omnipotent" constant, the C; and Eddington says that this speed "occupies a unique position in every measure-system . . . it is the speed at which the mass of matter becomes infinite, lengths contract to zero, clocks stand still."[3] I think this makes it clear that we need seek no further for our boundary line: (when concentrations of matter have reached the speed and heat relative to the speed

[1] *Un. Ar. Us.*, p. 198. [2] *St. & At.*, p. 26.
[3] Ibid., p. 55.

of light, we may say they have reached boiling-point, and the first bubbles rise to the surface—bubbles of stars whose numbers increase in direct ratio to the contraction of the parent nebula.

This process is easily understood, for as nebulæ contract they produce currents which are rarely symmetrical. "If the motion in each mass of condensing gas had been directed towards the centre of the condensation at every point, the final result would have been a spherical nebula devoid of all motion, but any less symmetrical system of currents would result in a spin being given to each contracting mass. . . . When the process of condensation was complete, the final product would be a series of nebulæ rotating at different rates."[1] In the sky, we can trace every step in the development of nebulæ to-day, from the perfectly spherical nebulæ, which are apparently not rotating at all, to those with slight rotation which have a shape like a "slightly flattened orange." As the rotation of these increases, so does the degree of flattening, until, at the Equator, there begins to appear a slight bulge, which grows sharper and sharper as the rotation increases, until the mass becomes like a double convex lense, a good example of which is seen in the photographs of the nebula N.G.C. 3115, a shape of this kind : "Up to this point each increase in rotation has made the bulge on the Equator sharper, but this is now as sharp as it can be. Theory shows that the flattening has also proceeded to the utmost possible limit, and that the next stage must consist in matter being ejected through the sharp edge of the Equator."[2] This, then, is the point when the nebula gets chopped off into the lumps we call stars !

In this story of nebulæ we have no difficulty in perceiving the rise and fall of a vast tidal wave : we have watched the material of nebulæ collect, concentrate and grow—till it reached its zenith. But seeing it could not continue growing forever, nor remain stationary, a decline was inevitable, and the periods of this decline may now be observed through all their stages. In all this it seems to me that the Law of Periodicity has reached the highest sublimation we have as yet encountered. It fills one with amazement when one realises the rise and fall of a wave in the dimensions of universes, and watches matter increase and decrease in a manner nowise different from that followed by atoms and men ! We see vaster and vaster shapes rise before our eyes, as these great cosmic bodies draw into themselves energy, even as did the atoms, and, having reached a certain limit of fullness, they

[1] *Un. Ar. Us.*, p. 202. [2] Ibid., p. 204.

start on their journey of decrease. The only difference is that we do not know their quantum number, but that they have one seems more than likely, considering that: "It is clear from photographs of spiral nebulæ that when condensation of their outer parts sets in, these do not immediately break into a uniformly distributed cloud of stars. . . . (They probably wait to collect their quantum? Author.) The condensations form on the largest possible scale at first, and then gradually smaller condensations form inside these, until the shortest wave-length is reached . . . the final condensation is stellar mass."[1] But even our galactic nebula, in a final stage of development though it be, has not yet completely dissolved into stars, for there are great black spots somewhere about its centre, that are suspected of being some of the material of the original nebula not yet condensed—or uncondensable?

Having now reached the star stage, it will be necessary to examine the nature of stars as such. As we were unable to examine the inner workings of nebulæ, it may be just as well to learn as much as possible of a star's composition, for on this must depend the story of its evolution—and what is true of stars was in all probability equally applicable to nebulæ, and will perhaps explain what seems obscure in what we have seen of their evolution. I think, to begin with, we may safely assume that only those condensations survive within nebulæ which are above a certain degree of intensity, for the same reasons as were adduced with regard to the primal condensations in the original gas. While the smaller disappear, the larger grow until they have become stars or suns. Here it is possible to calculate the minimum size of a condensation that can be expected to have a permanent existence, and these measures lead us to the astonishing fact, that most of them are of weights comparable to those of our sun. "We are dealing with stellar weights at last; the condensations which must form at the outer regions of the great nebulæ will have weight comparable with that of the stars."[2]

Further, stars are immeasurably hotter at their centres than on their surface. Taking the sun as an example (and all main sequence stars have approximately the same temperature) it has in its interior an average temperature of 40–50 million degrees, whereas its surface temperature is only 6000°. Now, as was seen above, heat is the necessary correlative of mass, and it is impossible "to build up a permanent star the size of the sun without introducing an activity or temperature exceeding

[1] *Ast. & Cos.*, § 357. [2] *Un. Ar. Us.*, p. 206.

10,000,000°,"[1] but seeing that heat has been "introduced," and that stars are at their densest where the heat is greatest, namely, at their centres, this must mean that where there is that intense condensation there must be the nucleus around which the star was built up.

In fact, what was said of the spiral nebulæ applies equally to the stars. In its extreme youth a star is "an enormously distended mass of gass, sometimes exceeding 300 million miles in diameter," the surface temperature being comparatively low, ranging from 2500° to 3000° Cel, and rising to 2–3,000,000° Cel at its centre, and "the density of whose outer part is soslight, that it might be compared to that of the residual gas in the vacuum tube, from which most of the contents have been pumped."[2] But, as it continues on its evolutionary path, a star "radiates much heat, slowly decreases in diameter, and increases in density. These changes are accompanied by a steady rise in temperature, which becomes greater and greater as the star changes from red, through yellow to white."[3] But here again the action is discontinuous, stars proceed by leaps and bounds; there is nothing in their evolution that could be compared to the changes in the sky at dawn, one colour melting into another. There are red stars, yellow ones and white ones, but nothing in between. At their most active and intense stage "the surface temperature of the white stars may exceed 20,000° Cel, and their central temperature may reach 30,000,000°. After the maximum surface temperature is obtained, the surface temperature begins to fall, but the central temperature may remain constant for a long period. The colour meanwhile changes from white through yellow to red, so that at one end of the scale we have huge expanded red giants, and near the other small condensed dwarfs."[4] There are three three main stages on this path, of which I will give three stars as an example. Algol in the first stage, which we may call the youngest, the Sun at middle age, and Krueger 60 a very old white dwarf; it took the sun about five billion years to get from the stage of Algol to its present condition, and Krueger 60 some five hundred billion to evolve from the sun state. We are now in a position to follow the evolution of stars from the condensation of nebular material to suns, which attract more and more molecules till they can spread no

[1] *St. & At.*, p. 13.
[2] G. E. Hale: *Beyond the Milky Way*, p. 62 ff.
[3] Ibid.
[4] Ibid.

further, of which Antares (which occupies 90,000,000 times as much space as the sun, yet is only forty to fifty times the sun's weight, its matter still being so widely dispersed), may be regarded as the culmination point, after which the journey starts on its backward march down through the sun to Krueger 60 and the Van Maanen star which are at the trough of the wave. These last are at what may be called the lowest step of all, beyond which no further development seems possible, and here there seems to be an impenetrable boundary "formed by configurations in which the atoms lie as close together as they can be packed (having lost all their electrons). In course of time most stars reach this barrier, but cannot cross it, and sidle along it indefinitely."[1] We now see before our mind's eye waves or periods of stars as of nebulæ—waves on a scale never dreamt of in the wildest dreams of delirium—but even these are only acts in this play of the great tide which is carrying its ebb out to sea, as we shall eventually discover.

To return to the quantum theory and our periodic law, there is a very interesting point about stars. Jeans says that one cannot regard the evolution of stars as "the steady march of an army through a perfectly flat country," but rather as persons scrambling down terraces. The different terraces in stars would correspond to the jumps of electrons from ring to ring in the atom, it seems to me. "A star stands for a time on the terrace (corresponding to one ring—Author) and then stepping on to the slippery unstable region between this terrace and the next, drops down to the next lower terrace,"[2] from the giant branch to the main sequence, let us say. It is impossible to find stars in any intermediate state, therefore it looks as if there were a law of somewhat the same nature as the quantum: stars may only absorb just so much, no more nor less, and never be in a part quantum condition! Main sequence stars are all of about the same diameter as our sun, then a huge gap, and then the white dwarfs of about 1/100th its diameter, and 0·0001 its luminosity. So much for the periodic dissolution of stars, but is there any reason to suppose that their activities manifest any characteristics of periodicity such as do atomic activities, for instance?

If we examine the stars very closely I think we shall discover in them a further form of periodicity, as peculiar to their nature as is the absorption and emission of energy by *h.v.* to the nature of atoms. Although it is very difficult to obtain exact knowledge of a star when it first condenses out of the nebular state,

[1] *Ast. & Cos.*, p. 165. [2] Ibid., § 165.

it is now considered probable that "quite large pulsations must be set up. . . . If so, in its first era of stable existence, the star must be executing pulsations of very large amplitude. . . . Although exact calculations are difficult, it seems very likely that the pulsations are checked mainly by conduction of heat, this reducing the duration of the pulsating stage to a time of the order needed to account for the observed number of long period variables."[1] Characteristic of these variables and their sisters, the Cepheid variables, is that they have periods of greater and lesser luminosity, and seem very rare in the firmament. They are a species of star that has given astronomers much food for thought of late: Jeans says: "We are forced to conclude that (variability) is more of the nature of a passing phase in the normal development of every star, or at least of a considerable portion of stars."[2]

It is not necessary to repeat here all that has been said of the way in which atoms inhale and exhale energy, but on the strength of what we already know, I think it is legitimate to regard the pulsations of stars and their variability as being of the same nature and arising from the same causes. But there is no reason why some form of this pulsation does not continue still. When we observe it in the stars, they are still in a very large and unsettled condition, later in the variables two stars in close proximity are acting upon each other, and we observe a nearer and further movement, most likely the expanding and contracting motions of the system; but there is no reason why all stars should not be pulsating still, only their motions being much quicker and more concentrated, we cannot observe the alterations. In any case these variable stars are but one more example of our periodic law—a ripple on the ocean compared to the immense rises and falls of nebulæ and stars—yet obviously of immense importance in the structure and evolution of stars.

Pursuing our way through the system of the universe, the next step further down the scale is the condition of the planets. These were supposed to have been born when a stream of matter was drawn off our sun by the passage of some wandering star, which approached close enough to draw streamers of gas from it, yet not close enough to be drawn into its gravitational action—a very rare occurrence in the paths of stars! According to the operation of the gravitational instability we observed in relation to nebulæ, when these streamers formed condensations that were large enough, they grew

[1] *Ast. & Cos.*, Ch. XV. [2] Ibid., ¶ 354.

into planets which swept up the remaining debris of gas and dust from the original sun stream, until there is now so little left that we only find last traces of it in the zodiacal light. Planets, once established, act in the same way as suns and nebulæ, they condense into large bodies and then slowly shrink as their surface crust hardens and their radio-active substances burn down. They are also scattering away from the sun—the main source of their heat supply—whilst their few radio-active atoms are burning themselves away—as we may observe in radium—which means that in some millions of years they must end as the dead ash of worlds.

Further still down the scale the last stage of all in the evolution of star life is that of the planets' satellites; Jeans says: "The principal characteristics of the solar system are reproduced with great fidelity in the smaller systems formed by Jupiter and Saturn with their accompanying families of satellites. Each of these small systems is so exact a replica in miniature of the solar system that no suggested origin for the main system can be accepted unless it can account equally for the smaller planetary systems. . . . Immediately after the birth of any planet, say Jupiter, for instance, the original situation repeats itself. . . . Jupiter, now playing the part originally assigned to the sun, while the sun, or wandering star, or possibly both together, play the part of the tide-raising disturber. Again we get the emitted filament, again the formation of condensations, and again, as the final result, obtain a chain of detached masses."[1]

We have now seen this occur five times in the various periods of evolution in the sky, and each time the next formation has been a great deal smaller than the last. Looked at in this way, one cannot help thinking that the process might go on for ever, each satellite of each planet might on these lines produce smaller satellites to circle round itself. But apparently there is a limit. We saw above that condensations in the gaseous element could not survive unless they were of a certain size, "the first five satellites of Saturn all have masses of the order of 10·24 grammes. Formula 378·1 shows that for bodies of this mass to be formed by gravitational instability out of a gaseous filament, the density of the original filament must be many hundreds or thousands of times that of water. Such a density is incompatible with the gaseous state."[2] If, then, these bodies were not formed out of a gaseous filament, they must have been solid from birth, and one can imagine them liquifying or

[1] Ibid., p. 384. [2] Ibid., ¶ 381.

solidifying almost at the same time as their parent planets, for gaseous bodies of this size could not have held together gravitationally, and would have dissipated into space. Therefore this must imply that no further gaseous filaments can be drawn out of bodies reduced to satellite stage, and they can only break up into or throw off dead lumps.

Having reached the limits of the bodies that ever have been or, as far as we can see, ever will be seen in the sky, the next question that rises to the mind is what will happen when a sun which loses 360,000 million tons of weight every day in radiation has radiated itself away, which moment must arrive some day, however long we may postpone the evil hour. The answer to this question depends on the sources of the sun's radiation, i.e. how it produces it. Eddington assumes that it is emitted from two sources (and I think all astronomers are agreed on this point to-day): (*a*) the transmutation of hydrogen; (*b*) the annihilation of matter. The first is certain, the other is still open to question, but since Lord Rutherford has succeeded in breaking up the atom, there seems to be little doubt left as to the exactitude of this assumption. With regard to (*a*) we spoke above about the energy released by the transmutation of hydrogen into higher elements. As this undoubtedly occurs in the hot interior of stars, it follows that the source of the radiation that is to last it the rest of the millions of years it has to live should be found in the highly condensed inner core. But this appears to be only a partial solution of the riddle, for we now come to the second phase. There are, it appears, many astronomical indications that the transmutation of hydrogen is not sufficient to answer for the energy emitted by the stars. "It may be responsible for the rapid liberation of energy in the earliest (giant) stages, when the star is a large diffuse body radiating heat abundantly: but energy in later life seems to come from a source subject to different laws of emission. There is considerable evidence that as a star grows older it gets rid of a large fraction of matter which originally constituted it, and apparently this can only be contributed by the annihilation of matter."[1]

There are many facts which support this theory which could not be explained by any other means. To begin with, it is not likely that the sun at its birth was very much hotter than the colossal temperatures shown above. "But as the 'rest mass' of an electron or other charged particles is generally enormously greater than its energy mass, the latter assumes its greatest

[1] *St. & At.*, p. 101.

importance at high temperatures. Now the temperature at the centre of the sun is about 50,000,000 degrees, in spite of which the 'rest mass' accounts for all but one part in 200,000 of the total mass."[1] This would lead us to conclude that most of the mass of the primeval sun must have consisted of that "rest mass" which was the storehouse from which it has been drawing the energy mass ever since. Considering that it has been steadily but surely burning itself away, the atoms in its store can only have disappeared in one way, "they must have been annihilated, and their mass must be represented by the mass of the radiation which the sun has emitted in its long life of millions of millions of years."[2] Even so, we could hardly believe that it could go on radiating for so long and not pass out altogether, but this is easily explained by an examination of radium, which as we know is radiating itself away in the same fashion, and whose rate of destruction we can calculate approximately: "Given a certain number of atoms of radium, half decay in 1580 years and half are left at the end of that time. In the next 1580 years half of that half will decay and a quarter of the orignial number will be left; at the end of a third period of 1580 years an eighth of the original number will be left, and so on,"[3] which shows an inverse ratio of decrease as it proceeds, and accounts for its length of life. Therefore even though the interior of the sun contains atoms incomparably more radioactive than radium, on this analogy its length of life remains perfectly comprehensible.

But however long we postpone the evil hour, the time must inevitably come when all that can be dissolved has been dissolved. What will then be the condition of the universe? On the one hand there will be dead suns, in a state much like that of our moon, composed of closely packed ionised atoms; but what will have become of the energy and electrons which those ionised atoms have lost? All that radiation will, according to Jeans, only affect the nature of space about as much as the melting of a grain of sugar would the Atlantic ocean! It is even possible to make an estimate of the number of universes in space, and it is computed that the melting of all into radiation would only make a difference of eleven degrees in the temperature of space. Calculation has shown that the universe could not become "saturated with radiation in the way tea may become saturated with sugar until it reaches a temperature of 7,500,000,000,000 degrees. At this temperature, not before, space refuses to absorb any more radiation . . . and to raise space

[1] *Mys. Un.*, p. 69. [2] Ibid. [3] *A.B.C.*, p. 122.

to this temperature would require the dissolution of some 3×10^{47} universes similar to our present universe."[1] At that rate, it does not seem probable that any building up process could ever be discovered in the physical aspect of the universe, and whether we like it or not we must accept the fact that: "Entropy must for ever increase; it cannot stand still until it has increased so far that it can increase no further. When this stage is reached . . . the universe will be dead,"[2]—dead of a "heat death" in which the total energy of the universe is uniformly distributed, and "all substance in the universe is at the same temperature."[3] In that hour we may consider that the last faint ripple of the flow of the great tide we have been watching will have sunk into the trough—the first period of God's Breath, of untold length though it was, will have ended at last.

III

We have now pursued the dissolution of the universe through all its stages: starting with a Primal Unity that must have been a thousand million times as big as the space covered by our largest telescopes, we passed down into the galaxies of which we perceive many hundred thousand wandering in space; those dissolved into stars (or suns) which in their medium stage are about a million times as big as our earth; we saw that when these dissolve or break up from one cause or another, the wave that arises out of the pieces that break away are planetary worlds such as we, one millionth, or thereabouts, the size of its forerunner; and finally we saw the waves of the physical universe sink into the ripple of our satellites, which have anything from 1/81th to 16 millionths of the weight of the planets, and, being composed of completely ionised atoms, may be regarded as the dead ashes of the universe. Through all these stages of regular decrease, there is only one thing that shows a steady increase, and that is the emanation from matter in dissolution, namely, the almost immaterial waves of radiation. But, that the goal of this whole process is not the production of dead suns or even radiation seems obvious; Jeans says: "The radiation of 10,000 dead universes may for aught we know be wandering round space," therefore one more or less can make very little difference! If "nothing less than the radiation from hundreds of thousands (of universes) would be susceptible of scientific measurement"[4] the dissolution of one

[1] *Eos.*, p. 51.
[2] *Mys. Un.*, p. 144.
[3] Ibid., p. 13.
[4] *Eos.*, p. 49.

is of very small consequence as regards the material impression it may leave behind, and dead worlds like the moon, have no importance whatsoever. We therefore seem to have reached not only the dead end of worlds, but the end of a whole system, the final running down of the cosmic clock.

But I must here again remind my reader that we are not watching all this as disinterested spectators, but as inquirers into the nature of Periodicity, and we have undoubtedly found that this law is as true to itself in the vast dimensions of cosmic bodies, as it was in the invisible ones of atoms. In cosmology we have seen the great waves of nebulæ and stars, increasing and decreasing, carrying along with them the smaller ripples of the periodic activities of the "variables"—but these periodic notions are one and all absorbed in the vast entropy movement of the Whole, which leads inexorably to the final going up in smoke—that is in energy! In every form cognisable in the universe there are the waves, but there is also the great tide carrying them onwards to their destination—on earth we may call it tide, but when it sweeps the entire universe along on its way, I call it the Breath of God—and like the tide, this is also going out to its predestined ebb, the completed exhalation. In it there are also countless rises and falls, those of universes, of atoms, of the vibrations of light and energy—all contributing their share to the formation of a "finite but unbounded" period in the existence of something greater.

Having reached this point, it looks very much as if we had attained a trough from which no wave could ever rise again to another crest, but if another formation of mass were not at all the object, and all this dissolution were final as far as matter is concerned—for what could ever raise the spatial temperature to the degree necessary to crystallise radiation into matter once more if the dissolution of everything we know could only raise it eleven degrees?—may it not have been a preparation for the birth of something altogether new, for the rise of which it was necessary that the material world should die? This must not be regarded as meaning reincarnation, any more than does the birth of a young oak tree out of the acorn dropped by the old. We should rather imagine it to be the turn of the tide rising from the final ebb of the universe of matter. In all the rises and falls, as mass decreased, immaterial radiation increased, the change was always from the substantial and visible to energy, the most intangible of all universal material. Applying to this process the idea of a great breath, does not the picture we have drawn of the evolution of matter correspond perfectly to the process of a

breath emitted by a body of any kind? Let us consider breath as such for a moment. Is it not the burnt up material that is emitted by the lungs, and as it pours out, does it not scatter in space? Even here the simile is exact, for matter not only dissolves, but as we saw, becomes more and more scattered, and it is no heresy to-day to assert that all things are receding from some central point in the long past towards their end in ultimate dissolution. And this is all that matters from my point of view, for it is the most perfect confirmation of my theory that we have thus far been witnessing the emission of something that scatters as it is put forth—as would a breath—on the vastest scale ever conceived by human mind.

But if all things are receding yet the universe is finite where will this recession end? Even though nothing is moving in straight lines as was once thought, and every body in space travels in circles round a "finite but unbounded universe," melting into radiation as it does so, yet even this must come to an end eventually, for this word "finite" sets some kind of limit, if it be not by a *where*, then by some kind of *when*. When all things have scattered that can do so, and every mass has turned into waves, does the role of entropy cease at last, and may we write the word FINE in rays of light across the depths of space? Is death the goal of all this vast upheaval? "Thou fool, that which thou sowest is not quickened except it die, and that which thou sowest, thou sowest not that body which shall be, but bear grain, it may chance, of wheat *or of some other grain.*"[1]

Let us turn to our idea of breath once more. We all know there comes a point when the breather has reached his limit, and although his exhaled breath continues to wander in space, his system requires a fresh intake of oxygen in order that it may live. "Dissolution is not death, but dissolution is of a compound; it is dissolved, not so that it may be destroyed, but that it may become renewed."[2] If we can believe in some Oneness, as immense and all-embracing as God, must not His breath be on a scale unimagined by human mind? Is it not perfectly in keeping with a conception so vast that His Being should go on transforming itself into radiation for millions of millions of years in order to produce the "infinitesimal amount of inert ash" which shall give rise to the new stuff that is required for the intake of new life? Such a system must also necessarily be "finite but unbounded"—therefore in every respect the universe conforms to the idea of the Breath of God.

[1] 1 Cor. xv, 36. [2] *T.G.H.*, II, p. 209.

If this suggestion be accepted, and it be admitted, that at the point we have here reached, matter, the outflowing breath, has attained its uttermost limit, we shall realise that we have reached the ebb of the vastest tide in all creation, that which contains within itself all breakers, all ripples, all vibrations, pulsations and undulations ; and now there is no possible way left for the universe to take except that of inflow. If any signs of such a thing be discernible, we must obviously seek to find them in the very elements of the last remnants of the ebbing physical world, since we know that in nature there can be no altogether fresh start out of nothing ! Let us therefore begin by a closer examination of the products of this earth, for clearly it, or any planet stage, can alone give birth to the new life that is to start on the journey back to the Source, since here the physical elements, although already reduced to ashes, compared to suns, are not yet quite dead—and from a completely dead satellite there would be nothing more to hope. Our earth may be regarded as the hard shell of the nut, which, though dead itself, is yet alive enough to hold in its heart a life that shall some day point its head into the sky.

CHAPTER II

LIFE THE PHŒNIX

I

BEFORE man's place in the great Law of Periodicity can be realised at its true value, it must be shown that he plays his part in the great Breath of God, as much as do the stars. If this Law be a universal one, the human being, so different in character to the elements, must have its place in the evolution of the whole, not necessarily less important than nebulæ, nor more than atoms, merely its particular part.

In the last chapter we spoke of atoms of hydrogen being propelled into this universe by some force unknown, and showed that they not only revolved upon themselves by action of the Law of Gravitation, but that their original impetus gave them a forward motion that has continued ever since. Now we know that atoms emit energy, but we must also remember that according to the Law of Entropy, energy is in process of being transformed from a more available to a less available form, "we are undoubtedly in the stage of the running down hill of energy."[1] At the same time there is another point about energy that we must never forget, namely, that nowhere and in no place is there any mention of its being destroyed, therefore we may presume that it is indestructible. It may develop from one form into another, cause atomic alterations that change the face of matter; it may cause systems of gigantic proportions to sink to dust, but throughout all these changes its amount in the universe remains unaltered, the sum-total is always the same. "Energy is indestructible as regards its amount, but it continually changes in form."[2]

This very change of energy may be the explanation of the origin of our whole universal system. If in an anterior state energy, or its equivalent, changed its form, could this not have propelled the material ingredients of that anterior nature outward, which ingredients then took the form of our universe? The fact that energy is the power that governs all changes in

[1] *Un. Ar. Us.*, p. 319. [2] Ibid., p. 317.

the universe, taken together with the further fact that it and protons and electrons seem to have been born in the same breath, (taken literally) makes it appear likely that they belong to an entirely different order of things to that which governs our destructible universe. "The formation of condensations must have had the start of the conversion of mass into radiation. . . . To my mind this rather suggests that the primordial material consisted of hydrogen (or equivalently free protons and electrons), since there would then be less opportunity for the conversion of mass into radiation. . . . So long as they are not combined into complex nuclei, protons and electrons are immune from annihilation."[1] Considering all these facts it seems to me we have ample reason for assuming that energy is of the essential nature of the power behind these changing worlds, which projected the waves of hydrogen-energy from out of Itself, and will, in all probability, draw the eventual issue back into Itself once more.

Until now we have been in the period of outflow, but I venture to think that with the advent of life we enter a new phase altogether. In the entire process we have pursued thus far, energy has been ruled by the law of Entropy, and all its changes have been unidirectional; it is just possible to conceive, however, that, although it may have been transformed into forms ever less available for material manifestations, yet at the same time it may have altered to a more available form for the construction of an entirely new and different set of phenomena, which arise with the appearance of life, rare occurrence though this appears to be in the universe. Astronomers maintain that there are probably very few stars in the whole universe with planets on which life might be produced; Eddington computes it at "perhaps not one in a hundred million of stars."[2] If one considers, not only our own Galactic system, but the million or more other spiral nebulæ, this appears at first sight to be an almost incredible paucity of life productive materials! There are two facts, however, which make this apparent miserliness on the part of the Creator with regard to the production of life quite comprehensible: firstly, the fact that the most usual form of break-up in stars is rotational, which produces a double star and not planets—at least one star in three is double—and it is practically certain that a double star will not have planets. Secondly, as Eddington says: "By elimination of alternatives, it appears that a configuration resembling the solar system

[1] *Exp. Un.*, p. 55. [2] *N.P.W.*, p. 177.

would only be formed if at a certain stage of condensation an unusual accident had occurred. According to Jeans, the accident was the close approach of another star, casually pursuing its way through space . . . it must not have passed too rapidly, but have slowly overtaken or been overtaken by the sun. By tidal distortion it raised big protruberances in the sun and caused it to spurt out filaments of matter which have condensed to form the planets."[1] Jeans says that the chance of a star thus forming a planetary system is one in 5×10^{17} years, which makes it about as probable as the meeting of any two out of twenty tennis balls roaming the whole interior of the earth! If on such odds depends the birth of a system in which the conditions are conducive to the production of life, we should be justified in considering ourselves as somewhat of a freak, and indeed, unless it could be shown that life is not limited to such rare formations, but that on the contrary it might possibly arise in any part of the universe in dissolution, it would not be worth our while giving it any further consideration in a universal scheme. But before dismissing it off-hand, I should like to examine the conditions which contributed to its birth a little more closely; perhaps it may be possible to discover a chance of those conditions arising independently of planetary systems—admitting, of course, that all life in the universe is not necessarily designed on the model of earth life!

We should remember to begin with that nebulæ are breaking up into ever smaller units, and at the same time running away from one another, scattering through the universe, but never completely decomposing into dust, for when their component parts, the stars, have reached the dwarf stage: "the great majority of their atoms are stripped bare down to their nuclei and so are immune from annihilation. . . . No further contraction is then possible for no further rings remain to be ionised, and even the central temperatures of the white stars are insufficient to produce any appreciable nuclear disintegration. As regards further dissolution, the white dwarf state is one of complete stagnation, changes in mass and luminosity being unappreciable within periods comparable with the whole life of ordinary stars. . . . Fowler finds that in the last stage, all the nuclei and electrons of a white dwarf may be regarded as forming one gigantic molecule which is in its lowest quantum state. In this stage it emits no radiation and its energy cannot be further diminished."[2] This being the case,

[1] *N.P.W.*, p. 177. [2] *Ast. & Cos.*, ¶ 166.

then in time there should not only be a larger amount of stars reduced to white dwarfs, but since the spiral nebulæ are condensing more and more into stars, there must also be an additional supply from that direction, and the chance of two stars coming close to one another would eventually not be as remote as it is at present—there might be thirty-five tennis balls available instead of twenty! From this point of view alone the chances of life-production increase in inverted ratio to the entropy action in nebulæ.

There seems to be another possibility besides that dependent on these rare coincidences however: the luminosity and ergo the heat of a star proceeds from the annihilation of atoms, and "as this is not a property of terrestial atoms, we are led to suppose that the stellar atoms which experience annihilation are unknown on earth and therefore of atomic number higher than 92." Further, as we know from the story of radio-active atoms on this earth, that they are continually in process of falling from higher to lesser capacities of radiation, so we may assume that star atoms do the same, and there is no reason for excluding the possibility of their falling to number 92 and lower; once their luminosity ceases we have, of course, no further means of gauging their fate. Stars in that condition would certainly be classed as what Jeans calls the "dead ash" of stars, and undoubtedly from the point of view of radiation our earth may be considered to have been dead at the time when it produced living organisms. Its matter had certainly come as near as could be to extinction, and yet it is precisely in this dead matter that the new form of energy arose. We are obliged to take these facts for granted, for although we may dissect living matter into oxygen, hydrogen, nitrogen and carbon, it has never been explained why these in combination should have produced life. It is clear that here there enters an entirely new factor onto the stage of cosmic evolution. Whereas heretofore it was possible to define the nature of that which arose out of the combination of various atoms, or their dissolution, now we are confounded by the fact that four species of atoms in combination, with no other assets that we know of, produce the quite unwarranted effect of a "spiritual, that is purposive activity, which, by intercepting solar radiation and magazining it in unstable carbon compounds, has evolved complex and elaborate self-repeating organic mechanisms."[1] If this be true, then it seems

[1] "Some Reflections on the New Cosmogony." Prof. H. Wildon Carr, *J.P.S.*, Vol. IV, p. 15.

to me unquestionable that it must be a normal event in the universe, that inanimate matter should "produce life in due course when the environment is suitable." But in that case, we cannot possibly continue relegating it to planets, and we should certainly be able to discover it existing under other conditions besides those common to this earth.

The first question that rises to my mind is: if among atoms reduced to a certain degree of non-radiation, life can emerge, could it not so emerge on the stars themselves when their surfaces had been reduced to sufficiently low temperatures and ceased to radiate? In support of this theory we have the following facts: (*a*) in relation to the origins of life on this earth, it has been assumed that: "when the sun's light was partly shut off by watery and gaseous vapours, the *early volcanic condition of the earth's surface* may have supplied life with fundamentally important chemical elements, as well as with the heat energy of the waters or of the soils."[1] This assumption is given further weight by the fact that the most primitive organisms to be found on the earth to-day "are dependent on heat rather than on light for their energy."[2] (*b*) That "in their power of finding energy or food in a lifeless world the bacteria known as *prototrophic* or 'primitive feeders' are not only the simplest known organisms, but it is probable that they represent the survival of a primordial stage of life chemistry. These bacteria derive both their energy and their nutrition directly from inorganic chemical compounds: such types were thus capable of living and flourishing on the lifeless earth even before the advent of continuous sunshine. . . . It is noteworthy that it is the *nitrogen derived from waters and soils*, rather than from the atmosphere, which plays the chief part in the life of these organisms. . . . A second point of great significance is that these nitrifying organisms are *heat-loving* and light-avoiding. . . . They carry on their activities best in the absence of sunshine."[3] The author of this work saves me the trouble of underlining the words that seem to me absolutely decisive for my contention. He evidently thinks these facts as important as I do—even though the conclusion he draws from them may be totally different; to me it seems that these facts imply that life might quite conceivably occur on a star that was no more actively radiating as are the stars we see, but which had sunk to what is called a dead sun, only radiating sufficiently to produce a surface

[1] *Or. & Ev.*, p. 31. [2] Ibid., 45. [3] Ibid., 381.

temperature modest enough to contain unionised atoms and support life, as does this non-radiating planet.

Furthermore, let us consider another possibility: at least one in every three stars is what is called a binary, a double star as we saw above; of these one is often very large whilst its sister is very small and old. Might not a combination of two such stars in a much cooler state than that in which we see them at present produce the required conditions for the emergence of life? The smaller of these stars would naturally have cooled down and ceased to radiate long before its companion, and at a given period in this process of cooling, certain atoms might have radiated themselves down to carbon, the atoms of which possess the unique capacity for stringing themselves into long chains of hundreds and thousands instead of into twos and threes like other atoms—which gives them the structure-building capacity to which we owe the beginning of life, according to Eddington. The larger star, on the other hand, would continue to radiate light and heat onto the surface of its older sister long after that had burnt itself out. Would not these two then develop a perfectly reasonably life-productive condition: what else is our earth but a construction of non-radiating atoms, with its surface heated by direct rays from outside, which description may probably equally accurately apply to some phase in the course of the life of binary stars! A greater or lesser temperature than that prevalent on our earth would seem to me no objection; it is surely not imperative that every form of life should be identical —nature, even on our small globe, is incredibly prolific and adapts herself to the most varied conditions, why not also to the production of life on a twin sun basis?

Let us further consider this earth's geological history. There is a theory according to which the great part of the water on earth has been produced from its interior, by the vaporous discharges of hot springs whilst it was still in a highly volcanic condition. This might quite conceivably occur on stars that had cooled and hardened, in a state beyond the white dwarf stage. Of course, I must also admit that our primordial earthly atmosphere was: "heavily charged with water vapour (H^2O), which has since largely been condensed by cooling,"[1] and there is no proof that any other heavenly body finds itself thus surrounded by a kind of envelope, but there is no reason why one of the very ancient binary stars might not produce it, given the possibility of volcanic springs. Admitting

[1] Ibid., p. 40.

the chance of these occurrences, for the rest we need only look to the picture furnished by our earth. If once we can imagine such a cool star to have water from any source whatsoever on its surface, "the chief elements essential for the energy and nutrition of nitrifying bacteria, namely, sodium, potassium, calcium and magnesium with potassium nitrate and ammonium salts as a source of nitrogen,"[1] *could* accumulate in the water or damp soils. Even in arid regions of this earth, the ammonifying bacteria do not exist on the dry surface rocks, but act vigorously in the soils not only at the surface, but also in the lower layers at depths of from six to ten feet, where moisture is constant and the porous soil well aerated, thus giving rise to a nitrogen-nourished substratum. On the stars we have been imagining, it might possibly occur that there were living things with roots far longer than eight or ten feet, going down into the volcanic water at depths undreamed of in this earth.

All this may seem fantastic, but I refuse to admit that this new and far more perfect stage of evolution into which nature has entered should be a mere side-track evolved by the freak formation of a few rare planets! But although the production of life be not so rare as may seem at first sight, this does not mean that men, as such, are not an extremely young product in the universe—a "nova," to speak in astronomical terms—which owes its survival in all probability to some chance combination of freaks which produced some grouping of genes, better adapted to surrounding conditions than were others; but of that later.

For the moment, going back to what was said above, about the downhill path of energy, we know that earth atoms are in a condition of very much lower energy than are those in the stars; according to the entropy gradient we consist of energy in a state of much less availability than they. Therefore, if in the present comparatively young state of the universe there can only be supposed to exist about one planetary system in a hundred million, as the universe grows older and more broken up and dilated and cooler, will not the conditions be more and more favourable for the production of life? We have watched Entropy working its way through eight to ten million years, and then at last, out of the scattered order it has produced, we suddenly discover, in a small corner of the universe, the first faint glimmer of a new order—one that seems inclined to concentrate instead of scattering, ascend the scale that matter had been descending.

[1] *Or. & Ev.*, p. 84.

Regarded in itself, life seems a very small thing for so vast an order to have produced, and it might seem a presumption to imagine that it is "the final climax towards which the whole creation moves, for which the millions of millions of years of transformation of matter in uninhabited stars and nebulæ, and of the waste of radiation in deserted space have only been an incredibly extravagant preparation."[1] But even though it be a presumptuous idea, I feel sure this is the truth, and that the material worlds in their dying states will finally all be capable of producing the low energy on which some form of life may feed itself.

It seems to me that I have now said enough to show that this new order may prove to be a universal order, like every one that preceded it, and not merely a blind alley; and this being so, it is incumbent on us to study it in its entirety, as a phenomenon of cosmic nature, in order to realise what it stands for and where it might lead.

II

At the very outset of our investigation of life we are confronted by a fact that is even more astounding than the emergence of life itself, namely, that living things seem to run counter to the inexorable Law of Entropy. Apparently life alone in the whole universe is collecting instead of scattering, co-ordinating instead of shuffling. Life is like a man walking up the down-moving side of the escalator, and in so doing it is also moving counter to everything we have studied hitherto. This fact has led me to the idea that this may signify that when life emerged, the universal forces started on a new course altogether. There is certainly every appearance of this being the case, and looking at life in its first infancy we find unmistakable confirmation of this idea. Atoms of oxygen and hydrogen being capable of combining with carbon—instead of dissociating as we see them do in physics and chemistry—eventually formed the first bacteria. Now it is a well-known fact that atoms in combination do produce unforeseen results; Professor Henderson, after an exhaustive study of the unique properties of the above-mentioned elements and of their inter-relationship, arrives at the conclusion that: "no mechanical cause whatsoever is conceivable of those original conditions, whatever they may be, which unequivocally determine the changeless properties of the elements,

[1] *Un. Ar. Us.*, p. 335.

and the general characteristics of the systems alike. We are therefore led to the hypothesis that the properties of the three elements are somehow a preparation for the evolutionary process."[1] Thus at the outset we get a relation of three elements which, so far as we know, here combined for the first time, although they are all to be found in the solar spectrum. Osborn even says: "it is interesting to trace them back from the earth into the sun and thus into cosmos. It is through these 'properties' which in life subserve 'functions' and 'adaptations,' that all forms of life from monad to man are linked with the universe. . . . In general the important life elements are very widely distributed in the stellar universe,"[2] there are in fact "no elements in living matter which are not found in its lifeless environment."[3] Which facts are another proof in support of my contention that life may be more universal than is generally believed. If the necessary elements are widely distributed, why should they not combine elsewhere as they have on earth?

The next question that arises is how these four life elements, hydrogen, oxygen, nitrogen and carbon could have joined together for the first time, and here we may well leave a small crack open for the agency of chance, unless we conclude that it is in the very nature of these elements to attract one another into groups in order to form living phenomena? Whatever the reason may be, we must regard energy as the medium which preceded and made possible the formation of the life germ, and that energy which caused dissolution to reach its limits, is perhaps now starting on a new and upward path.

If the final reduction of matter to "dead ash" and radiation ends the output of the breath of God, and if we agree in regarding that breath as some form of mighty energy power, we may take it that it now starts on its backward journey; accepting Newton's third law, we might say that the period of reaction has set in. I, taking my law of waves, say: matter having dissolved into the trough, there now begins a re-collecting process, a re-ascension that must eventually lead to the supreme crest, to the fullness of God.

Where and how this new beginning originated it is difficult to say. According to Jeans, the dissipation of energy into heat is the end of cosmic evolution, but this is not the last word, for in the biological realm we run up against another factor: "when we look back at the past history of life, we see definitely

[1] *Spirit in Evolution*, p. 172. [2] *Or. & Ev.*, p. 46.
[3] *Sc. of Life*, p. 394.

enough that through all the five hundred million years of adequate record, biological progress though slow and somewhat devious has been sustained,"[1] which progress is shown to depend on the development of a "more elaborate and delicate brain-machinery." Admitting then that biology is following some kind of progressive upward grade, contrary to what physical science has taught, it is interesting to follow it backwards, as we formerly remounted the entropy gradient; we then discover that all the elements in the construction of living organisms are of low atomic weight, and, as do all atoms in dissolution, develop a great amount of heat in combination, which facts make it appear probable that the birth of life must have taken place in the meeting of various elements in dissolution. But the problem is: where are the special conditions which would be conducive to a meeting of these particular elements to be found? It is now practically certain that the sea was not Life's birthplace as was thought at first, for, although the salt sea, as it is now, is a perfect agent for the production of life, the water of the primal ocean was relatively fresh, and did not contain the essential "earth-born nitrogen compounds." We can therefore conclude that: "the lowest organisms originated either in moist earths or in those terrestial waters which contain nitrogen. Nitrite and nitrate occasionally arise from the union of oxygen and nitrogen in electrical discharges during thunderstorms, and were presumably thus produced before life began. These and related nitrogen compounds so essential for the development of protoplasm may have concentrated in pools of water to degrees particularly favourable for the origin of protoplasm."[2] That life originated in water is impossible to doubt for two reasons: (*a*) the fitness of water to life, both as a solvent of all bodily fluids, and as the container of hydrogen, oxygen and other chemical compounds vital to the construction of living material: (*b*) the electric property of water known as the "di-electric" constant. Although it is itself only slightly dissociated into ions, it carries dissolved electrolytic substances, and therefore possesses electric conductivity to a high degree—a matter of the greatest importance for the development of the "electric energy of the molecules and atoms in ionisation."

In the last few years though, two discoveries have been made that have thrown fresh light on this abstruse problem of the origin of life, "one is the fact that light, even without chlorophyll to act as a transformer, can effect various chemical

[1] Ibid., p. 480. [2] *Or. & Ev.*, p. 38.

syntheses. Under the influence of light, small quantities of sugar and other organic substances, some of them nitrogen-containing, are generated from a mixture of such simple substances as water, carbon-dioxide and ammonia."[1] To-day such substances are only manufactured in much smaller quantities, for it was chiefly the ultra-violet rays that were responsible for such chemical transformations, and now most of them are stopped by the oxygen in our atmosphere. But "in those primeval times the oxygen-content of the atmosphere was certainly lower, perhaps almost absent, and so the light could get to work to some purpose."[2]

The second discovery made in these matters is one that is for our theme absolutely vital, and puts my idea of the birth and growth of life out of the death of universes, on a firmer basis than ever. There are, namely, creatures that are actually on the borderland between dead and alive, the bacteriophages or bacterium consumers. "These ultra-microscopic units are able to grow and multiply so long as they are given a supply of living bacteria to consume. Dead bacteria are no good." But given bacteria to live on their numbers increase rapidly. "D'Herelle, who discovered them, believes they are alive, because they multiply. Others say they are only an exceptionally active kind of ferment which happens to be knocking about the outside world, but is helpless to make more of itself except out of matter that is truly alive. The truth may lie between these two views. *If living matter has originated from dead* (italics author's) then we shall expect that intermediate conditions should exist. In these bacteriophages we have perhaps discovered the 'missing link' (that which first arose out of the meeting of various elements in dissolution !) between two states of matter. . . . These are but hints . . . but they help to confirm our opinion, based on a general weighing of alternatives, that, as a matter of history, life on this planet originated from not-life, that it originated at one phase and one phase only, that it probably originated in the surface waters of the warm early globe, and that sunlight, that 'only begetter' of all our terrestrial activities, played a necessary part in its origin."[3]

Taking all these contributory facts and putting them together, can we not picture to ourselves the starting-point of life ? I see plainly before me vast desert spaces of volcanic rock, interspersed with great lakes or oceans, with blazing sunlight pouring down out of a sky, the intensity of which we

[1] *Sc. of Life*, p. 395. [2] Ibid. [3] Ibid., pp. 395–6.

can have no idea of, even under the hottest tropical sunlight. And then at some dawn different to any other, in some pool in the rock, where the rays of the sun fell with concentrated force, the impossible happened. Four elements joined together and something stirred that had never stirred before, and laid the foundations of a new world. What happened then? It seems probable that sheets of protoplasm-like substance were produced, some of which just failed of self-reproduction and lost life, serving as food for the one or the few, perhaps the above-mentioned bacteriophages, which could be considered in some sort alive.

Once life of any kind had started, there is another factor that contributes to its further progress: "As soon as the grouping of chemical elements reaches the stage of an organism, *interaction* also becomes essential. . . . The principle of interaction may apply at a distance and the result may not be contemporaneous. This is actually inferred to be the case in single-celled organisms such as the Amœba."[1] That form of lifeless energy which by co-ordinating and interacting in the life processes is found to be of vital importance to their further evolution is called a catalyser. This is "a substance which modifies the velocity of any chemical reaction without itself being used up." It is probable that such a catalysing energy is the product of two or more of the elements in combination, and when once produced in the right setting it would proceed to build up organism upon organism, but not necessarily the same. The interaction might eventually result in millions of different species, once one combination had occurred. But it must not be imagined that there is any more continuity between one compound and another than there is continual flow in the stream of light. The evolution of life must have proceeded in steps or, what I prefer to call periods (as did the stars), by "saltation or mutation."

I think I have said enough to enable my reader to imagine the birth of life and its further evolution into the first cell, which in contrast to the mechanical evolution of inorganic matter, continues to grow by what we might imagine to be a first germ of mind, a growth which proceeds by an interchange of oxygen and carbon-dioxide, by food intake, reactions to heat from external agencies, procreation, even if it be only by division or multiplication. A concentration occurs of something that must eventually produce mind, and therefore inevitably contains within itself the seeds of it. Bergson says: "As the

[1] *Or & Ev.*, p. 57.

smallest grain of dust is bound up with our entire solar system, drawn along with it in that undivided movement of descent, which is materiality itself, so all organised beings from the humblest to the highest, from the first origins of life to the times in which we are, and in all places as in all times do but give evidence of a single impulsion, the inverse of the movement of matter, and in itself undivisible. All the living hold together and yield to the same tremendous push "[1]—a push back to the being of God.

We shall now realise that the entire further march of creation, which is of value, depends on the growth of cells, the collecting instead of scattering of forces. The first cell became a nucleus round which there concentrated more and more elements: air atoms, humidity atoms, heat atoms, are all drawn upon to feed this omnivorous creature Nature has suddenly thrown up. And still it grows and concentrates and finally appears the first living plant, with its precious chlorophyllian properties; not until the chlorophyllic stage of plant evolution had been reached was life equipped with the best means of extracting the carbon dioxide from the atmosphere, so necessary for its further development. As regards the time occupied by all these developments, it is of such dimensions that it becomes a mere mathematical concept, but just as we realise the atomic world's activities taking place in time so short that it becomes for our eyes no time, so must we visualise the universal pulsations equally as no time in relation to eternity. Unless our minds become capable of regarding the universal waves of time from as detached a point of view as that from which they regarded the waves of radiation, we cannot hope to arrive at any understanding of the vast scheme of the universe. In order to obtain a slight idea of the meaning of the universal time-table we must oppose to it the idea of world without end, having done that, the 2000 million years of life which geologists presume the earth has had, or still more the possible 300,000 years attributable to the life of *homo sapiens*, are merely a drop in the ocean. Jeans gives us some idea of the meaning of this cosmic time when he says that civilisations appear at an average rate of 1 per 500 million years in the galactic system, and, "we should probably have to visit 50,000 galaxies before finding one as young as our own."[2] Therefore we are apparently not only an extraordinary formation, but a very young one, and if this be so we may then attribute to our possible future development—not the material one, for that as we have seen

[1] *Creative Evolution*, p. 359. [2] *Ast. & Cos.*, ¶ 384.

s already declining, but the mental or spiritual one—a time to be reckoned by hundreds of millions of years to judge by our past.

In considering the formation of stars in the spiral nebulæ we compared them to bubbles in a vast whirlpool. But it is in the nature of bubbles to form one, then another, and so on in increasing quantities. This also occurred with the continually increasing heavenly bodies. The simile may also be applied to the new mind-informed formation. It has steadily increased its output since first it arose, on our earth alone, and we may assume that although at present one civilisation is only supposed to arise in every 500 million years in time, the production of life may eventually become the one goal towards which every heavenly body tends; this is my firm conviction.

Let us now once more take up our original thread of reasoning. We have watched cosmic bodies of different species rise and decline, but through all these waves there was one vast movement of dissolution leading to the ultimate dispersal of everything in a final state of energy; then we see on a body which may almost be regarded as the dead ash of cosmic worlds, the rise of something absolutely new, which at once divides the whole universe into two categories: animate and inanimate. Being something entirely inexplainable and totally contrary to everything the universe has shown itself to be so far, we are forced to the conclusion that its advent marks a new turn in the scheme of creation, something which was perhaps the goal of that vast wave of material outflow which was astronomic life. When energy had dissolved itself to its minimum, it was suddenly engulfed in something else, which is undoubtedly akin to energy, but at the same time completely new. The living cells were, however, not themselves the goal as it seems, for they built up colossal bodies, but it was only when these shrank again that the truly great metamorphosis occurred, we call it the birth of mind or soul, but we do not thereby explain it: it is a fresh re-gathering of material forces into a germ hitherto unknown. In the womb of living matter there suddenly matured: man, with his unique gift of self-consciousness. It seems preposterous to assume that vast forces like those universal convolutions should merely have had microscopic man as their end. Yet if, as we may perhaps see later, man has qualifications which can carry him beyond the universe, he is surely of greater dimensions than any stars!

Perhaps it may seem strange that, whereas stars take

billions of years to inhale and exhale their life's energy, the evolution of living substance should be reckoned by a mere 300 million ; but firstly, it is only at the beginning of its career, and secondly, is this any more strange, or does it make life any less of a mighty factor, than are the atoms which inhale and exhale their energy in ·000,000,000,000,000,000,000,006·55 erg-seconds, and yet build up universes, or than is the human body which inhales and exhales its energy at an average rate of seventy-two beats per minute, or the life of nature inhaling and exhaling its energy in periods of seasons ? All these things are entirely relative and the time factor is no argument for or against, it plays absolutely no role, it is merely a conventional calculation adopted by man to bring order out of chaos in his surroundings. And in relation to the Absolute, the length or brevity of time taken by the pulsatory process, in any connection whatsoever, cannot possibly have any influence on the inferences we may draw from our observations.

III

Let us now proceed to examine the evolution of life, learning what is important to us from biology and palæontology, but keeping ever present in mind the fact that, in everything and everywhere, we are seeking something which is not what we are able to see with our eyes, or touch with our hands, but the law to which all these are subservient. We must learn to regard life on earth as the re-accumulation of an unknown quantity, which had hitherto been dispersing itself, and attempt to follow it up to its final end in all-unity. The universe has burnt itself down to life, but life, I think we shall find, is heaping up coals again, from the minuteness of the atom to a vastness as yet unimaginable. We are, in short, still in a world in the making, but as in the past we studied the scattering according to the Law of Entropy, so now we shall study an ingathering, a re-collection, and follow it up through all forms, to an end that is still wrapped in clouds.

Let us to begin with be quite clear as to three facts, which are important for all that is to follow : (1) " There has been a hierarchical order of new modes of organisation with attendant properties in the evolutionary past up to date. (2) There are no grounds for supposing that there will be in future no further steps upward in evolutionary order. (3) There are good grounds for expecting that the new steps, if such there be, will prolong

the orderly and nowise disorderly advance of nature."[1] These facts not alone encourage us on our way and confirm us in the idea that ashes of universes are not the end, but they also contain a hint of an "upward" moving order running in an opposite sense to the Law of Entropy, and I think to-day even the most ardent advocates of that law are obliged to admit that the science of biology may be outside its control. It is, therefore, here that we must seek for them, if ever signs are to be found of the emergence of a new force, one that has freed itself from the rules that govern the whole evolution of inanimate matter as the butterfly frees itself from the laws that govern the caterpillar! G. N. Lewis says of it: "The observation of animate nature leads to the almost irresistible conviction that here emerges into our perception a new element alien to the randomness that characterises the physical sciences, indeed, living creatures are cheats in the game of physics and chemistry. It seems that animate creatures alone are striving for distinction in the midst of the almost overwhelming levelling forces in the great democracy of atoms."[2] J. S. Haldane, in speaking of this seeming discrepancy between biology and the physical sciences, maintains that, if ever a point is found where these sciences meet, and one is swallowed up, "that one will not be biology."[3] I do not think either will be proved more right than the other, it will merely be recognised that each deals with a completely different stage in the world order. We have in this work followed the course of the one down to the birth of the second, we shall now start with this new birth and trace its forward march even to the threshold of possible dreams undreamt of hitherto.

Starting from the conception that the living order of things is a new birth, ruled by new criteria, and having seen the new birth taking place in water, we must now proceed to study what occurred after that. Living material rises from bacteria to man, but between these two there is the path of many thousands of millions of years.

The species of bacteria which were formed in the beginning were of a kind that lived directly on the lifeless world, but were possessed of almost all the chemical energies of the living world, and their reactions were similar to those of the higher plant and animal cells. Further, "they began to mimic the subsequent

[1] Lloyd Morgan, *J.P.S.*, January, 1930.
[2] *Anatomy of Science*, p. 160.
[3] J. S. Haldane: *The Sciences and Philosophy*, p. 96.

evolution of the higher plant and animal world by an adaptive radiation into groups which respectively sought new sources of energy, either directly from the inorganic world, or parasitically from the developing organic bacterial and plant foods."[1] Although the earliest bacteria needed oxygen for combustion in their intercellular actions and reactions, free oxygen was fatal to them and they were obliged to draw what they needed from inorganic or organic compounds. There followed after these a transitional species of bacteria, able to use either free or combined oxygen and from these there finally emerged the higher "spore forming bacteria" to the existence of which free oxygen is absolutely essential. These are the links that eventually lead to higher forms of life. They anticipated the plant world as well as the animal world of Protozoa and Molluscs by largely conducing to the formation of earth crust capable of maintaining life. For instance, the iron ore found in pre-Cambrian stratified rocks whose age is estimated at 60,000,000 years is believed to be of bacterial origin.

The next step is a difficult one to trace with certainty, there is a diversity of opinions on the subject. Even at the present time it is questionable whether bacteria ever reached "the evolutionary stage of the typical cell, with its cell wall, its contained protoplasm, and its distinct nuclear form and inner substance known as chromatin. . . . Granules of chromatin nature have, however, been discovered in bacteria, and all the common forms have been found to contain *nuclein*, the specific nuclear protein complex."[2] Further, according to the latest ideas there are indications that the chromatin elements represent the primary and living units or individuals, and that the protoplasm represents the secondary products, although most probably both chromatin and protoplasm were co-existent in cells from the very beginning, both in bacteria and even in ultra-microscopic forms. "We may regard chromatin as the basis of the entire scale of living individual formations, for as the protoplasm is the *expression* of, so the chromatin is the seat of heredity. . . . In the development from unicellular (protozoa) into multi-cellular (metazoa) organisms, the chromatin is distributed through the nuclei to all the cells of the body." Considering that the most original property of life-forms is their capacity for the maintenance of any specific form throughout all changes of matter, caused by the intake and output of energy, chromatin becomes the substance on which hinges the whole evolution of living phenomena. "It is in the hereditary

[1] *Or. & Ev.*, p. 89. [2] Ibid.

chromatin that the ideal form is not only preserved but, through subdivision, is carried into the germ cells of all the present and succeeding generations. It would appear . . . that the continuation of life since it first appeared in Archæozoic times is the continuity of the physico-chemical energies of the chromatin . . . the evolution of life is essentially the evolution of chromatin energy."[1]

I have dwelt long on this subject because from this point up to the ultra development of life in its largest dimensions, it is only a question of the increase of the multi-cellular organism at whose birth we have now assisted. *That* this was born is what matters; how it grew and became differentiated; what are the causes of its evolution, are still matters of controversy among biologists and do not concern us here. Following the periodic law, we know from experience that all physical phenomena in the universe, once *arisen*, must develop and grow to their utmost capacity eventually to subside again, and it would be a truly momentous discovery if we were to find that organic forms obey this law as faithfully as did inorganic ones! However far-fetched this idea may seem to be at first sight, there is apparently ample justification for it. For instance, regarding the group formations in prehistoric animals, palæontologists have all agreed that they did not evolve continuously at a uniform rate, but that, like stars, they evolved by distinct stages, or in terraces, to use the simile we employed in astronomical descriptions of such things. When, for instance, new organs appear in the animal world, they seem to bear a sort of "time signature" of just one period and no other; they seem to have appeared intermittently too, for a time one, then a long pause and then another utterly different formation would appear, so much so that the process has been variously termed: "rhythmic," "pulsating," "efflorescent," (Charles Depéret), in fact the very same terms have been applied to this process as we have been employing all along to describe periodic forms of every description—which I cannot help thinking is a definite proof that life itself has not escaped the dominion of the periodic law!

As it seems to me important that here, at the very outset of a consideration of organic phenomena, we should perfectly grasp the form that periodicity is now taking, I should like to consider for a moment the "pulsating rise, growth and decline of some special epoch characteristics," "expression points," as they are called; I think, too, that this will be the best way

[1] Ibid., Chapter III.

I can take of climbing from the multi-cellular organism we have arrived at, to man. To take the Paleozoic era, the oldest known period wherein any traces of animal species have been discovered, we find that a frontal hole, which was in all probability some kind of visual organ, is present in all the various, not necessarily genetically related, groups of animals belonging to that period. This hole appears alone in the cranium of some early Paleozoic fishes, in others there are, beside the two normal eyes, two frontal apertures; later the amphibians have only one frontal aperture, which in them reached its summit of development, and continued in the reptiles of the Permian period, and then slowly declined and disappeared in the Mesozoic era, until at the present day the animals still possessing traces of these eyes are the lampreys and certain amphibians and reptiles—man's pineal gland is presumably a relic of it.

The Mesozoic era is responsible for the rise of upright-walking land animals, in contrast to the four-footed walk of the late Paleozoic salamanders; many of these land animals had long and powerful hind legs and short front ones, which enabled them to balance themselves upright—possibly in order to reach food from the higher trees of that epoch?—from this the later development of birds and man. Finally, the Tertiary period produced the species with five and four-fingered toes, which later evolved into single-hoofed cattle, and horses, or double-hoofed buck. Each one of these successive types predominated on earth some hundred thousand years and then gave place to another, and, although their features are still to be found in various animals in modified form, none has ever been known to start up afresh when once it has subsided or died out. Types arose and declined again as have all universal phenomena we have traced so far. But here, however, we must remember that we have started upon the period of reassembling—we are no more in that of entropy—and therefore there is something more than the mere growth and decline of types. If we consider the human form, for instance, we must realise that man has assembled in his body the physical features that characterised each one of the great time eras: the frontal eye (pineal gland), five-fingered hands, upright walk, the early tertiary dentition, etc., which proves that every period right back to the Paleozoic era has left its mark upon him. If we take this fact in conjunction with the idea that no body possesses the "expression points" of any period in which it did not exist, this would mean that man's first appearance on

earth must be set back to a very much more remote date than has been commonly assumed.

More than this I cannot say; biologists, zoologists and palæontologists have not yet come to any agreement as to how man arose, therefore it is useless to discuss it here; we must just be content to leave a gap between the birth of the multicellular organisms, and the emergence of animals, amongst which was man. What appears to be man's entirely personal prerogative is that he continues to possess the features of all epochs combined; for whereas he has kept the hollow bones of birds, the lower jaw and dentition of certain sharks and reptiles, the five-fingered extremities of the mesozoic amphibia, the kidneys and liver of early aquarian mammals, none of the presently living descendants of prehistoric animals possess any but one or at most two of these "expression points." Man seems to epitomise all the animal formations that ever populated the earth, which leads to the suspicion that he cannot be classified with the scattering formations in the universe, that he has escaped the Law of Entropy, and is in some way the pinnacle of nature's work in organic *physical* evolution. I shall, therefore, take up my tale of the further evolution of this life that has appeared on that rare cosmic phenomenon: a life-producing planet, with the story of man's part on earth.

Going as far back as we may, right into legendary life, let us attempt to start at the very beginning of this human periodic wave, only thus can we eventually hope to survey that wave in its full size and grandeur. The earliest legends relating to man, preserved to us from almost prehistoric times, all contain certain stories in common, whether we draw them from sources in Central America or Western Asia, Northern Europe or Africa. One of the most striking of these inherited stories of mankind is that which tells of a primeval battle between foolish giants with one eye in the middle of their foreheads and wise, small gods. The newest anatomical discoveries relating to the pineal gland, show that: "At one time the vertebrate stock had at least one eye—probably two—staring upwards from the middle of the head . . . apparently the pineal gland is a forehead eye which first became blind and useless, and then (at least in the higher vertebrates) was turned to another purpose and made into a ductless gland."[1] I am not interested in the secretions of the ductless glands, although the importance of these in relation to growth and development is increasingly clear, but what is significant, in these facts, for my theories

[1] *Sc. of L.*, p. 725.

is, that they prove the truth of one part of the legends, namely, that the one-eyed man actually existed, and if the story of the frontal eye be true, then that of gigantic growth may be equally accepted; tradition could not have preserved one fact correctly and invented the other! I am therefore not asking my reader to believe some fantastic fable, but to realise that if the exterior large single eye went with gigantic men of small brains, and the smaller-sized and more highly developed man with the cerebro-spinal-nervous system arose with the inversion and decline of the frontal eye into the pineal gland, we are hereby learning something regarding the mind development of mankind which has hitherto escaped us. If this story proves true, then can this legend, which arose in every part of the world, be regarded as the earliest recorded recollection of mankind, and become of priceless value in throwing light on dim ages of the past. To take only two illustrations of this strange human tradition: the Gilgamesh epic of Babylon and various illustrations in the Maya manuscripts both tell the story of men of immense stature with undeveloped, webbed hands and one eye, being at war with smaller and more perfected men, "coming out of the east." The story ends in both cases with the defeat of the giants by the greater skill and wisdom of the smaller, so-called "gods." It is clear that we have here the allegory of man endowed with mind, overcoming animal man in the course of human evolution, and so entering upon the era of his predominance on earth, which has grown and spread ever since. We men are evidently the "expression points" of this era, but what then?

My reader may well ask: What has all this to do with the Law of Periodicity—the vast period of "intake" on which we are assumedly embarked? I must now explain. As was seen in the course of the nebulæ, of suns, of planets, each form increased to a certain size, and then there appeared to be a turn of the tide, a back-swing of the pendulum, and there started a movement of decrease, which always ended with the extinction of one form and the birth of a new. In each case, the larger form dies from loss of its substance, in radiation, and is followed by the emergence of a small and more numerous progeny, which grows and increases until, in its turn, it declines, emitting its energy in radiation. What occurred in the heavens also occurred with animals and finally with man: he arose out of something like an amœba, so small it can only be seen by aid of the microscope, and grew to gigantic size; then the tide turned, and, as with nebulæ and stars, some force which we may regard as the equivalent of the "radiation pressure" in the

stars—perhaps in the earth's atmosphere ?—stopped all further growth and turned mankind onto the path of decline, from which, in the course of time there emerged a being with much reduced physical characteristics, which might almost be called the ashes of the first stage of these organisms.

But we must here remember that we are no more on the road to dissolution but to upbuilding, and although organic forms endowed with life follow the course of rise and fall encumbent on all physical phenomena, thereby demonstrating the true nature of waves and proclaiming themselves true to kind, yet, a collecting process should be noticeable in the next rise of wave by the emergence of something more intensive, more perfect, more energy-full than the last. It should also have drawn more ingredients to itself instead of being one step further down the ladder to dissolution. And this is exactly what has occurred : if we consider present-day man with his physical characteristics, undoubtedly belonging to the nature of the physical world, *and* his conscious mind, which, explain it as we may, cannot be classified with any form of energy so far known in the universe, we cannot but believe that he has collected to himself a new, richer and more complex nature than did any universal body before him. This being so, he is undoubtedly as much of an advance over animal life as was animal life over plant life—each form embued with life has so far shown progressive accumulation of power and increased energy, and thereby become more capable of surviving the lower, less-organised forms of existence. " Something of the same general nature as consciousness, we suppose, accompanies the activities of all living matter, it may be of all matter ; but it is generally beyond comparison feebler than ours, and like the electric properties of nerve or muscle, is undetectable by ordinary inspection and is of no specific use to the animal. . . . In the course of evolution, however, special machinery is built up—brain—through which these mind properties of life have been utilised, intensified and harnessed, and finally in ourselves made the most important biological property of the organism. . . . The survival value of this complex choosing organisation, which involves consciousness, is obviously very great. By means of its enhanced powers of association and analysis, the newly evolved human mind enables life to grasp much larger situations than it was ever capable of before "[1]—is it not, therefore, obviously remounting the stairs of entropy, assisting the cards to " re-become unshuffled " at last ? And does this not throw

[1] *Sc. of L.*, pp. 762–3.

a new and startling light on man and his place in the vast ebb and flow of the Breath of God? Regarded from this point of view, small and insignificant though he appears to be, man becomes one of the most vital links in the whole system.

In tracing the evolution of matter from its vastest dimensions through increase and decrease of one form after another, down to the emergence of man, we have found that all this occurs in strict conformity with the Law of Periodicity, that is, not by a slow and gradual shrinkage, but rather by contraction in spasms. And as with the stars so with all else, each stage of events has remained "at about the same size through a long period of time, after which a rapid contraction occurs, followed by another long epoch of unchanging size, another rapid contraction and so on."[1] From these facts we may be allowed to deduce that when living matter has attained the stage of human beings, it there makes one more of its pauses, and after a certain period of time, one more of these strange leaps will occur, one more rapid contraction, and something new will emerge—or should we regard ourselves as the final "white dwarfs" of the whole physical world? But even so, before becoming the "ashes" of the universe, suns emit unmaterial radiation which travels on through space long after they as physical appearances are dead, therefore, on this analogy, we may also look for the birth of a new unmaterial essence from out of the shrinkage into "white dwarfs" of living organisms.

Any attempt to forecast the nature of this new emergent must necessarily be extremely tentative. If, however, we take into consideration the fact that with the material appearance of mankind, a wholly new phenomenon appeared on earth in the form of conscious mind, which with every decrease of the man-animal as mere physical organism has but increased in power, we may well believe that, continuing to increase in inverse ratio to the decrease of such organism, it must eventually emerge free from all substance whatsoever. This will be the greatest step ever made by the universe on its course since the very beginning, and if we human beings be regarded as the cross-roads between the out-breath of matter and the in-breath of spirit, we become a link as magnificent as the stars themselves and as significant.

[1] *Ast. & Cos.*, ¶ 385.

CHAPTER III

AT THE CROSS ROADS

IN pursuing the last wave of material substance as it arose, concentrated and developed into planets, which in their turn are now cooling and scattering, and are in all probability on their way to dissolution and the dead ash of physical worlds, we have arrived at a point where it is possible to imagine that this material earth, to which we had attached so much importance, is but one more wave-stage in the cosmic system. But since no wave sinks without being superseded by another, so is there every probability that this wave, like the rest, after declining into its trough, will be followed by the rise of another, of what description yet remains to be seen. Regarding it in the light of the greater period of God's breath, we must admit that we have here not only sunk into the trough of the wave of physical, astronomical bodies, but that we are at the same time attaining what looks like the trough of the whole evolution of what we regard as the universe proper. It is the end of one vast outbreath that has covered untold millions of years, from the primal One to a space-time sphere, wherein everything looks like going up in a puff of smoke—or radiation if you prefer. If our periodic law holds good, however, within the trough we should be able to discover the first faint sough of the indrawing breath : the turn of the tide.

It would seem presumptuous perhaps to make any prophecy with regard to the future path of the universe, but it is probable that, if anywhere, the first traces of a new movement will be discoverable within the womb of life. If this be so, we must admit that never did any Heaven-scaling event arrive with softer doves' feet ! Yet if we concede that the story of God's breath has any chance, however slight, of being true, then surely it might be possible to recognise in man, the highest sample of life-endowed phenomena evolved thus far, not only the materials of the dying physical order of things, but also the germs of an altogether new form of energy : conscious mind. The physical world of non-radiant atoms might be the ashes of suns, the end

of one great process, that of the exhalation of energy, but the physical world *embued with life* may contain the first symptom of the next stage, that of inhalation! Is MAN in the universe perhaps that first faint puff of air that presages the dawn?

To my mind there is no doubt that the Law of Periodicity is here as clearly defined as it has been in anything we have witnessed so far. In every case when a system has reached the trough, this law demands that a new wave should arise out of the death of the old, and strictly in accordance with that law, there are distinct traces in the nature of the human organism of the birth of something new—of that which may become a great a-material wave that must finally end at the One-All once more. And as we watched the wave of the material universe rise, decline and disperse, so is it now our turn to look for the rise of the re-entrant: energy or spirit.

It was necessary that the whole universe should be reduced to ashes in order that life might emerge, and perhaps we shall discover that men embued with life-plus-mind are the first step in a new order altogether. But all organic formations, even man the most evolved, are still more than half material, that is, composed of inorganic elements, which means that they are still bound to the wheel of the conditions that have governed the whole inorganic universe. I said "more than half" intentionally, for there is the rest that is not material: mind, consciousness, spirit or whatever you like to call it. If it could be shown that this is the first spark that will eventually give rise to something that has freed itself altogether from physical conditions, then would self-conscious man become, not only the trough of the material universe, but the cross ways between matter and a non-material world. The first manifestation of such consciousness or mind would then be the torch-bearer of a new condition altogether, which, continuing to evolve in the way it has begun, must eventually give rise to a wave altogether free from the shackles of space-time, gases, minerals or any other property of the physical world.

But if we are to regard the human being as the bridge between a material and a non-material world, as the barrier which cuts across the evolution of the physical universe and turns it back onto a new path, it is obvious that our first care should be to consider the reasons we have for such an assumption, and the first question that rises to the mind is: has man ever shown any symptoms of being aware of a greater role for mankind than that played in the immediate present? Is there anything common to all humanity, some belief or intuition,

that gives us a hint of man's dual status, fruit of the past, seed of the future? Let us look through the world around us and see if there be anything that might lead us to suspect that deep down in his inner consciousness, man is aware of standing at the cosmic cross-roads. If we accept the evidence of inspired words pouring out from some fountain within—perhaps from man's subconscious mind, which communicates many things to the brain, largely in symbols, and which the intellect interprets or not as it may—I think it may be possible to discover some sign, some word, used by all mankind since the very beginning, which might express an awareness of the true nature of man. If such is to be found, it is surely among the mystic symbols used by the human race from time to time. In seeking among these we find to our amazement that there is one sign that has been used consistently, at all times and in all places, namely, the sign of the Cross.

I do not think there is anyone so parochial to-day as to assert that this symbol is an exclusively Christian one, for wherever we find traces of past civilisations, this sign is invariably present. I also think that the migratory explanation of these things has long since been abandoned in favour of the theory that, on reaching a certain stage of evolution, man expresses himself in identical terms all the world over. Therefore it seems perfectly reasonable to claim for the sign of the Cross the privilege of marking the first rise of the religious idea in the mind of primitive man, in fact its rise seems almost synonymous with the first rise of self-consciousness. Although its original significance got lost in the course of time, later generations still carried on the symbol, sensing in it something eternal.

As this fact is of the utmost importance for the story of mankind, let us without bias as to where our investigations may lead us, examine the various forms of the sign of the Cross, and enquire into the role they have played in different lands and civilisations. I think that nearly all anthropologists are agreed to-day in thinking that the worship of the Cross originally arose from the use of cross-sticks to induce fire amongst the most primitive civilisations. Fire was and is, to all primitive men, a manifestation of deity, something supernatural which a benevolent deity uses as a blessing to man, and an angry one as a death-dealing weapon; and the worship of the God of Fire—Agni, Loki, etc.—was an important part of early religion in every land.

Now, as soon as man began to realise that there was something within himself that was more than, and apart from, the

physical life of stones or plants, and at the same time recognised that his body was warm for no reason that he could see, he naturally identified this "soul" life with fire or flame. From this follows quite naturally that the cross-sticks which induced fire should have been transmuted into the cross out of which must rise the soul-fire. Later, as men came to think more deeply and realised their own imperfections, the idea of a new and more perfect birth "by fire and by water," rose to their minds, as hope and consolation, and again this new birth could not have been more perfectly symbolised than by the same sign of the Cross. And so it came about that the Cross was on the one hand the physical emblem of the maker-of-fire-body, and on the other the symbol of the living, restless, warm, new appearance: life, which to the untutored mind is indistinguishable from "soul." Considering all these things I have no hesitation in regarding the Cross as the emblem which has symbolised man's subconscious awareness of his position in the universe, midway between the old order and the new. But at the same time it has always had for men's minds some hidden connection with their God: that new soul-fire was felt to have the same relationship to a more perfect condition as has the small fire on the hearth to the great God Agni whose attribute it is.

As the world went on and man progressed, the origin of this cross symbol was lost, but its meaning was carried on unchanged. In Egyptian hieroglyphs, for instance, the ankh is the symbol for life and living. This Cross, which is like a man with his arms outstretched, is remarkable for the fact that, whereas the lower parts of it are thick and material, the head is the O which in all mysteries stands for eternity. Life would seem to be symbolised here as crucified in matter, and out of this crucifixion rises mind or spirit—a new life that must push up into eternity. Is it therefore very far-fetched to regard this cross as signifying the vertical way of the mind soaring upwards and piercing through horizontal matter, to attain spirit eternal? It would not be in any way out of keeping with Egyptian thought, especially when one finds that they placed this sign on the garment of their kings; in the tombs as an amulet to accompany the dead on their way beyond the grave; and on the funerary papyrii whenever the incidents of passing on are portrayed. Used in this manner, the ankh must signify eternal life to all connected with it.

In India the Swastika has always stood for the wheel of rebirth, and was more especially the symbol for Vishnu—the

Preserver—who is the second in the Triad of Dieties that typify the evolution of existence: he is the middle between the Creator Brahma and the Destroyer Shiva. The swastika is also held to be the symbol for the rise and set of the sun, the birth, growth and decay of man, and here again this is represented by two arms: body and soul. Apart from India, the swastika is also to be found in the Maya ruins of Mexico, the lake dwellings of Switzerland, on the earliest Scandinavian potteries, in Etruria, amongst the American Indians, and an example of it was even found recently on proto-Elamite pottery at Souza, a locality entirely off the line of migrations, and its existence here, although apparently an isolated and sporadic case, is the earliest known.[1]

Lastly there is the well-known Tautic cross **T** which has symbolised the tree of life at various times and places over all the earth. In Scandinavia it represented Thor's hammer which stood for the victory of the Gods—men with mind or soul—over the forces of the underworld. In Greece it is to be found on the garments of Aphrodite, whose rise from the waves always symbolised the birth of the soul, or re-birth into higher realms. There it also stood for the double Omega, the dual sign of the death of one system and the birth of another. There is besides every reason to believe that the hierophant, on initiation into the new birth, was marked with a sign which was in India, Egypt and Israel the Tautic cross; the celebrated mark of Ezekiel is supposed to have been this very sign. Therefore we see arising out of the subconscious mind of all mankind this recognition not simply of eternal life, which might arise from the desire for it, but of a new life.

I think it is perfectly possible that the highest initiates of antiquity understood the true significance of the sign they dispensed to the people, and that it was known to the High Priests of every land. In attempting to solve the mystery of what was really meant by the use of this sign, we may discover that the consciousness of the true nature of man was not born to-day, but was a sacred tradition, never taught to the "people," on the principle that: "seeing they see not; and hearing they hear not, neither do they understand."

The fundamental teaching of all mystery religions was, as we know, that this life is only a preparation for a greater one, and

[1] Note: Christian archæologists consider this 卐 to be the oldest form of the sign of the Cross; and the Indian word Swastika means "salvation," for Swasti was in India what the ceremony of baptism, or salvation, is for Christians. See Burnouf: *Science des Religions*, p. 152.

initiation was merely an entering on a path that should lead to ultimate realisation, or a liberation of the mind or spirit from its physical confinement; this is what was everywhere symbolised by the sign of the Cross, and Christians regard it in the same light to this day. But for us the veil of mystery which enwrapped all these subjects has been lifted. The neo-Platonists give us many indications as to what was meant by this sign, and they were not only the direct heirs of the Egyptian priests, but were probably equally well versed in the various mystery religions that were current round the Mediterranean basin in their day. There are also many references to the Cross throughout the Gnostic texts, which are extremely enlightening, but, in order to understand their meaning, it is necessary to translate the thought that lay behind the letter. In so doing many obscure passages immediately become clear, and at the point we have now reached in studying the Law of Periodicity, I do not think these texts will present any difficulties to my reader.

In one of the oldest of Gnostic texts, dating probably from the third quarter of the second century A.D., and in which is preserved one of the most remarkable traditions of the mystical life of Jesus, we find among many interesting and beautiful things the following words: "And having thus spoken, he showed me a Cross of light set up, and about the Cross a great multitude, and therein one form and one likeness; and in the Cross another multitude, not having one form. . . . Now the multitude of one aspect that is about the Cross is the lower nature (the human nature, Au.), and those whom thou seest in the Cross, if they have not one form, it is because not yet hath every Limb of Him who came down been gathered together."[1] This seems to me a perfect expression of what I am trying to convey of the true nature of the Cross in the life of mankind. The "limbs" in all the mysteries, Egyptian Book of the Dead, Jewish Kabbalah, or Orphic texts, represent the parts of the Godhead scattered over the earth as mankind, after the "death" or descent into matter of the manifest aspect of God, which shall eventually return from whence it came, or be re-collected, as in the case of Osiris. We must certainly have begun to realise by now that life is re-gathering where entropy has scattered, and so shall "every limb of Him be gathered" some day!

A further light is thrown on this subject by a very early document, the Untitled Apocalypse, which deals almost exclusively with the Gnostic mysteries connected with the Cross.

[1] Acts of John, Apocryphal New Testament, vv. 98 and 100.

To take one of the most significant passages: "The second space is that which is called Creator, Father, Word, Source, Mind, Man, . . . Pillar, etc. . . . The outspreading of his hands is the manifestation of the Cross. The Source of the Cross is the Man (Logos) whom no man can comprehend" (p. 23).[1] If we connect these lines with all that has been said regarding cosmic evolution, it is clear that when we reach mankind we arrive at the "second space" or stage—in the greater law of God's breath, and in this sense man becomes all these things: Man, mind, word, etc., is not his mind even the "creator" of the world he lives in? I do not think anyone to-day would be so bold as to assert that the world, *as we know it*, is anything but our creation; what it is in itself we shall probably never know in our human condition. Further throughout the Gnostic texts, man, in his highest aspect, the "Pillar" or the Cross are identical, which entirely confirms the conclusion we have arrived at quite independently. Lastly, it seems clear from all this that it is the spirit of man that is the "source of the Cross," since without this, matter would never have been "double-crossed" on its way to universal dispersion. But that we do not comprehend anything of the real nature of this spirit even now will be admitted if even C. G. Jung, one of the most distinguished of living psychiatrists, has to admit that: "Despite all the psychology we think we possess to-day . . . the psyche is still a foreign, almost unexplored country of which we have only indirect knowledge."[2] If ever this psyche, which makes man different to the whole rest of creation, is to be "explored," however, the manifestations of genius should be our first care, for it is undoubtedly the inner man that is the source of all inspiration, as will become evident later when we study the Buddha and Jesus.

Regarding the "outspreading of hands," there is a further interesting reference to it in the Odes of Solomon: "I stretched out my hands and worshipped the Lord, for the extension of my hands is His sign, and my expansion is the upright Tree (or Pillar)."[3] I believe that in this text, as in the last, the extension of the hands symbolises the event in cosmic evolution when Life had arisen out of the ashes of matter, the "pillar" rising into an a-material realm beyond the mere physical one, the outstretched arms forming the horizontal "boundary," which is

[1] From the Codex Brucianus, transl., by F. Lamplaugh, under the title "Gnosis of Light," approx. date A.D. 180.
[2] *M.M.S.*, p. 86.
[3] Early Jewish Christian text. Cf. *Gnosis of Light*, p. 65.

at the meeting of two worlds, and turns the tide inwards, to ultimate completion in an expansion which covers all things, in worship or at-onement with the "Lord." Mr. Lamplaugh gives us a very illuminating commentary on this subject of the Pillar and the outstretched hands, which I feel makes all further explanation unnecessary: "To realise what is meant, we must remember that 'Charis' (grace) and 'resurrection' were the names of 'Staurus'—the Pillar, that made with 'Horus' (the limit), the great Cross referred to more than once."[1] Hence it is clear that in the mind of the initiate, the Cross stood for Man—the Pillar, piercing the boundary (Horus) of the physical nature and rising, i.e. resurrecting, by "grace" which is represented as the "bride" of the Logos (mind), into a condition beyond the Horus.

That we have at last obtained a true explanation of these obscure texts seems to me unquestionable, especially if, with the above explanation in mind, we consider the following. Hyppolitus says of the Cross, considered as the supreme mystery: "Now it is called the Boundary, because it bounds off the Deficiency from the Fullness; it is called the Cross or Stock because it hath been fixed immovably and unchangeably so that nothing of the Deficiency should be able to approach the Eternities within the Fullness."[2]

This text makes it quite clear that the Cross, or Boundary, is that which stands midway between the Deficiency (which undoubtedly stands for the material universe), and the Fullness, a new order, perhaps spiritual, containing the essence of all things, and which divides one from the other, so that nothing deficient shall enter the Eternities. This seems to me as clear an expression as is to be found of the idea of the Cross standing between two worlds, the boundary of both; and if the first germ of an unmaterial life which must eventually transcend matter be indeed planted in the conscious mind, does not the container thereof become the true Cross or boundary between "Deficiency" and "Fullness"? He is indeed "partaker" in the material world in so far as his material body is concerned, and yet entering the Fullness, in so far as in him is spirit, which, as we shall see later, knows no limits, and may eventually be recognised as pervading all things, being also "full" of all things. Considered thus, it is clear that when once man has become conscious of this his true nature, his role must be that of

[1] *Gnosis of Light*, p. 75.
[2] *Philosophumena, or Refutation of all Heresies*, Chap. VI, 3; approx. date A.D. 222.

freeing the portion of the Fullness he possesses from the last traces of the "Deficiency."

The idea of the Cross as "boundary," limit or "palisade" is older than the Gnostics, or Christianity even, for in Plato's Timæus there is a description which can only mean the same as the "outstretched" arms, or the boundary, the "Cross of Light" mentioned in the first quotation: "They saw the extremities of the Heavens extended in the midst of the Light, for this Light was the final boundary of Heaven, somewhat like the undergirdings of ships, and thus confined its whole revolution."[1] If we place these lines next to the following from the Apocryphal Acts of John, I do not think there can be any doubt left in our minds as to the universality of the significance attached to the idea of the Cross. "This then is the Cross which by the Word (Logos—Mind. Au.)hath been the means of "cross-beaming" all things (is not the above "undergirding of ships" a "cross-beaming"?), at the same time separating off the things that proceed from genesis below . . . and also compacting them into one";[2]—in other words, "confining their revolution." Surely this means that the Cross or Light stands between the things below, namely, inorganic life, which is scattered throughout the universe in many forms, and those which proceed from "genesis," and make all further "revolution" to be a progressive concentration into a oneness, which will in all probability be of mind-power alone. There are many thoughts, but One Mind.

No one realises better than I do, how extremely obscure are all these texts, but when I arrived at the conclusion that the life of humanity is the Cross between the output and intake of the vast periodic scheme I am endeavouring to investigate, and realised, as Mr. Lamplaugh says, that "the Cross of Calvary was taken by the Gnostics to be the outward and visible sign of a concealed or *Cosmic* Cross,"[3] I could not but feel that here there were people who had understood the place of man in the universe, in exactly the same way as myself. And further, I fully believe that something of this idea has lain at the back of the minds of all men who have used or do use the sign of the Cross as the symbol of their faith, from time immemorial to the foremost leaders of the Roman Church to-day. It undoubtedly stands as the symbol of resurrection

[1] *Vision of Er.*

[2] *Gnostic Crucifixion*, Vol. II. *Echoes from the Gnosis*, Vol. VII, G. R. S. Mead.

[3] *Gnosis of Light*, p. 45.

into a more spiritual life in their eyes, and is this not what we have been saying, the only difference between us is that they regard one Man as the Cross ; I, all mankind ![1]

I must confess, for the sake of those who might feel inclined to find my interpretation of these texts a little far-fetched, that it has taken me several years to reach the point where I feel I have really grasped the meaning of the above sayings, and perhaps it is too much to expect of anyone that they should immediately see them in the light that I do, but seeing the close relationship between the symbolism of the mysteries and the point I have reached in my account of Periodicity, I could not refrain from alluding to them. Unquestionably the matter is extremely obscure, however, and I cannot pretend to deal with it adequately here, it would require many volumes to elucidate these texts satisfactorily !

There is one last point which I must mention before I cease, because I think it is of interest in this connection. In the Ode of Solomon, the pillar of the Cross is called the " upright Tree " ; is it not conceivable that the Tree of Life prominent in all religions, stood for this very Tree or Pillar of the Cross ? The Tree of the Knowledge of Good and Evil, the Tree in the Garden of the Hesperides, the Tree with the Golden Apples of eternal youth, tended by Freia in the Edda, the sacred oaks of the Druids, even to the Bo tree under which the Buddha attained enlightenment, are these not all of them trees of " resurrection " out of material existence into an " eternity " beyond ? Mr. G. R. S. Mead makes a very interesting comment on the symbolism of the Cross, which I think throws light on this aspect of the " Tree " as the Cross. He says in reference to the story of the Crucifixion in the Acts of John : " The sentence : ' when He was hung on the Cross ' contains a great puzzle. The word in the original is *batos* ; this may mean the ' bush ' or ' tree ' of the Cross. . . . It is not only the Cross of dead wood or the dead trunk of a tree lopped of its branches —a symbol of Osiris in death ; it is also the Tree of Life. . . . For the Gnosis, that which at once separated and united light and darkness was the Cross. . . . *Batos* does not mean ' bush ' really, but medium of transmission."[2] As such, is it not clear that it stands for Man, with his feet in the ground, and his head rising into the skies, carrying the seed of eternal life beyond the limits ?[3]

Nowhere have I found a clearer or more beautiful expression

[1] See Note 1.
[2] *Echoes from the Gnosis*, Vol. VII, p. 23.
[3] See Note 2.

of all these things than in the work of one of the greatest thinkers of our day, which proves that such ideas are not relegated to a dead and ignorant past, but are still alive and potent. Henri Bergson has depicted the position of man in a way that is in complete harmony with the ideas of him as the Cross or *Batos* handed down from the ancient mystics, and I hope his words may convince my readers that we have not been dealing merely with mythology, but with an idea that holds good for all time. In a work, which I might be tempted to regard as one of the scriptures of the modern world, namely, *Creative Evolution*, Bergson says: "All our analyses show us in life an effort to remount the incline that matter descends. . . . The life that evolves on the surface of our planet is indeed attached to matter. If it were pure consciousness *a fortiori*, if it were superconsciousness it would be pure creative activity. In fact it is riveted to an organism that subjects it to the general laws of inert matter. But everything happens as if it were doing its utmost to set itself free from these laws. . . . In reality life is a movement, materiality is the inverse movement, and each of these two movements is simple, the matter which forms the world being an undivided flux and undivided also the life that runs through it (the Pillar or Tree). . . . We catch a glimpse of a simple process: an action which is making itself across an action which is unmaking itself, like the fiery path formed by the last rocket of a fireworks display rises through the black cinders of the spent rockets that are falling dead."[1] This is a perfectly clear and scientific description of a cross movement which corroborates the Gnostic texts in every respect, and I need say no more.

But apart ideas, apart all our modern common sense, our science and all the rest, do we not still worship the Tree, that Tree which something in us persists in regarding as the symbol of a greater life? I have not mentioned the Christian idea of the Cross before, knowing that it would necessarily be in the minds of all my readers as they followed me through these pages. For the moment I do not wish to discuss Jesus Christ nor the Christian religion, as I shall do so fully later on, for it is a question which I consider vital to the world, and it must therefore appear at its proper time. But whoever has followed me closely thus far may easily realise, without being told, that should the mind of man ever burst through the physical boundaries, and set itself free, man as such would perforce die on the Cross-Mankind. What follows after must perforce have no

[1] pp. 259, 263–4.

further relation to materiality—the body remains nailed to the Cross and cries: "Lama, Lama, Sabachthani," but the spirit must go on, for Truth must set it free.

Mankind is still very far from that point, however, there is a long way to travel before we realise such a condition as that; suffice it for the present that we recognise man for what he really is: the great finger-post at the cross-roads of the universe. Let us proceed to decipher the indications on that finger-post, they may show us the Way.

"Homage to the King of Kings, and Lord of Lords, and Prince of Princes. Thou hast ruled the two Lands . . . grant thou to me . . . the power to sail down the river to Tettu in the form of the living Ba-soul, and the power to sail up the river to Abidoe in the form of a Benu Bird, and the power to pass in through, and to pass out from, without obstruction."[1]

Note No. 1. Anyone interested in pursuing these ideas in relation to the Cross more exhaustively, will find many things of interest in C. Schmidt's *Gnostische Schriften aus dem Codex Brucianus*, Vol. VIII, pts. 1 and 2, in the Apocryphal Gospels, in the works of the early Church Fathers, and in all the works of G. R. S. Mead. There are also many highly interesting analogies to Gnostic ideas in the Egyptian Book of the Dead which have not yet been investigated.

Note No. 2. From the point of view I have been advocating it is interesting to study the symbolism of the Tet in the Egyptian Book of the Dead. I would more especially refer my readers to Chapter XV of the Theban Recension, where I find a truly remarkable example of these ideas. Here we find the following scene: At the top of the picture the disc of the sun is resting on the loop of the symbol of life, the ankh cross, and is supported by two human hands and arms. The ankh, in turn, rests on top of the Tet. This Tet represents the spinal column of Osiris, the God of the Underworld, the "dead sun of yesterday," and it is probable that in very early times he was represented by this symbol alone. On the left of the Tet is the Goddess Isis, and on the right the Goddess Nephtys. Isis is the Goddess of the Dawn, the Sophia or wisdom; Nephtys is the "Lady of the House," the earth Goddess. In this connection, I think it is obvious that they are symbolic of the awakening spirit, and the house which lodges it; and

[1] Hymn to Osiris On-nefer, Book of the Dead.

together they raise the pillar of the dead sun of yesterday into the eternal life of to-morrow. In the picture the loop of the ankh is yellow, clearly expressing radiance, whereas the arms that grow out of it as well as the sun above, are dark, and convey a sense of immateriality, or the opposite of visible forms as we know them, which is totally different to the rest of the picture. "I come forth and I shine; I enter in and I come to life."[1]

On the famous "Ludovisi Throne" in Rome, we find the rising Soul upheld by two Goddesses, probably the same symbolism. It is also interesting to note in this connection that the symbol of the Tet originated in the temple city of Per-Asar-neb-Tetu, where grew the sacred acacia or sycamore trees, and in all probability these were regarded as images of the sacred "Spinal Pillar" of Osiris, and if this be so, the tree is once again the symbol of man rising to immortality.

[1] Ibid., Chap. XLII, 14. E. A. Wallis Budge.

CHAPTER IV

FROM WORLD ASH TO SUPERCONSCIOUSNESS

I

THE story of material evolution ended with the first stir of mind activity in the brain pan of the last and smallest of material constructions in the great building of the universe, but that stirring of mind gives a new significance to the whole edifice. At the final ebb of cosmic matter, if Periodicity still holds good, we should be able to discover the first faint trace of a new flow—a new beginning. And if such a beginning there be, then undoubtedly only in Man's mind is it to be found, for with this there appears something entirely unforeseen in the construction of the universe. It is an amazing fact, if one comes to think of it, that the bodies in the heavens should have evolved, automatically as it seems, through untold millions of years, and then at the end should have produced a minute being, containing some form of energy so powerful that it is capable of dominating the whole inorganic world, and holding the whole living one under its sway! From nebulæ of inconceivable dimensions, from animals of gigantic size and strength, from trees so tall their heads almost reach the clouds, matter has sunk down to little man, weak and defenceless in body, but with a power embedded in his brain which has raised him to lordship over all he surveys. Man, protected by nothing but his insubstantial mind, has battled his way against all enemies into a position of power that is unequalled in the whole history of evolution, as far as we know it.

The only way in which we can explain this extraordinary phenomenon is to imagine that as this planet cooled and shrank and sank, at its final ebb it gathered strength and rose in one last wave, small as is the last ripple of a summer sea breaking on the most distant beach, in comparison to those thrown up against the cliffs in the winter's gale. But in truth, as this last ripple in the ocean of matter spends itself, it turns and faces a new realm, the realm of mind. As coal burns itself away, and its energies go out in heat, as the bursting balloon lets out its

gas, as the body heaves one last sigh as it gives up the ghost, so does the last pulsation of matter release something that is not material any more. Life inhaled force and built itself up and decreased, and gave birth to a new power in the universe: self-conscious mind.

What is this thing that is apparently the privilege of man alone on all the earth and on 100,000,000th of stars? A study of biology would lead us to believe that there are signs of its coming in all living organisms, let us say: preparatory conditions, and these culminate in the human body, which seems organised for the sole purpose of producing the brain and endowing it with the necessary forces for its maintenance. In order that we may understand the full significance of this brain of ours, we must therefore first of all comprehend its relationship to the body, and what are its characteristics; having grasped its link with the material world on the one hand, we shall afterwards endeavour to trace the nature of that which emerges from it and projects itself out into an a-material world.

As we know, man lives and grows by the food he eats and by the air he breathes; the first falls into two categories: the quartenary or albuminoid, and the tertiary including carbohydrates and fats. The former are destined to feed the tissues, the latter supply power or energy to the central nervous system, which system unites the body's sensations to its activities. Now the main source of the tertiary foodstuffs lies in the chlorophyllian function of plants, and as the development of the nervous system in all living creatures seems to be the keynote to the whole upward march of organic evolution, we see Life growing like an immense tree with its roots in the vegetable kingdom and its head in the insubstantial mind clouds. The reason why plant life is the foundation of practically all living creatures (the only exception being possibly certain bacteria) is that all such are dependent for life on the substance of other once living things. (Whereas the plant alone, by its chlorophyll, draws its energy direct from the sun.) "If animals and fungi are food-parasites upon green plants, green plants are energy-parasites upon the sun. The whole of life upon earth depends upon solar energy,"[1] and although we absorb a great deal from the air around us, without the plant's unique capacity for absorbing and making use of radiant energy contained in light itself, the animal world could never have existed in its present form. As it is, plants draw energy from solar radiation by separating the carbon from the carbonic acid, and transmuting it

[1] *Sc. of L.*, p. 578.

into starch, which they store up as in reservoirs. This carbohydrate, or starch, when it becomes animal's food, is carried as glucose by the arterial blood into the tissues, where it is deposited in the form of glycogene. Glycogene is potential energy, and is apparently stored in the body for the purpose of supplying power to the nervous system, and any animal in activity draws on this supply of energy, and the body has to arrange itself so as to provide the amount needed.

This nervous system seems to be the characteristic that distinguishes animals from all other organisms in creation, it is non-existent in the vegetable world, yet at the very outset of animal life we find traces of it. Even the very early polyp Obelia, for instance, has a network of nerve fibres, and it is said of the microscopic Amœba that any part of its body may be "now a sense-organ, now *a nerve*, now a muscle!" In the course of ages, the nervous system has grown and developed until it has become not only one of the attributes of the animal organism, but, under the control of the human brain, it is now the most important factor in the body, and here lies the crucial point. For whether we regard the brain as actually the mind or merely its instrument, there is no doubt that "the hundreds of muscles that move the human machine about are controlled by the nerves, for each muscle must have its own nerve supply, and the nerves radiate out from the brain and its continuation the spinal chord. Brain and spinal chord constitute a government, so to speak, which rules the muscles; it is constantly flashing instructions along the nerves and commanding a movement here and a relaxation there." Not only that, but it also "receives a copious stream of information from all parts of the body and laboriously responds to that stream and moves the mechanism in appropriate ways."[1] Clearly, therefore, the brain is the most vital factor in the living body, and the most remarkable proof of this lies in the fact that in men or animals that have died of hunger, the brain is found to be almost unimpaired, while the cells of all the other organs have undergone profound changes; it seems as if at all costs the organism fed this centre to the last.

These are physiological facts that have the most profound bearing on our subject, for they lead us to the conclusion that what we obtain from plants and plant-eating animals, is not the energy that feeds the physical mass we call body—(the albuminoids see to that)—but energy that gives rise to and feeds a new variety of power altogether, namely, brain energy.

[1] *Sc. of L.*, p. 26.

That is the important point for us at present, what makes the body is inessential, for it is in the energy of the cerebro-spinal nervous system that we must seek the first traces of the new wave that is to bring us one step nearer the beach where the tide shall ultimately break. But that day is yet far distant, at present we are only at the beginning, our tide has only just turned, for in considering the nervous system or the brain, we have not yet gone beyond the material aspect of life. Apparently, but if we look a little closer, we find that in saying: brain, we have said something more than we were quite conscious of. Eddington says: "The physiologist can trace the nerve mechanism up to the brain; but ultimately there is a hiatus which no one professes to fill up. Symbolically we may follow the influences of the physical world up to the door of the mind; they ring the door-bell and depart";[1] and here begins the great mystery which confronts man to-day.

Everyone knows now that the world we live in, as our senses apprehend it, is one thing, and the world as seen through the glasses of the scientist is another—which of the two is the world as it really is, no man can tell as yet; probably neither. But however that may be, there is one thing that is undeniable, which is that: at the very outset of consciousness the mind accomplishes some strange act of transformation of the world around it, and with the aid of the cerebro-spinal-nervous system acts in a manner never known in the world before, namely, creates the image of its surroundings.

Much has been written and taught about the illusory nature of the world we live in—religions have been built up on this foundation, but in admitting that what our senses convey to the brain is a picture that does not conform to Reality, we must further ask ourselves, whether the mental conception that supercedes it in the minds of scientists may not equally be an illusion? The whole world of atoms may be a mental projection just as the physical world was a sensory hallucination! But in any case, there is one thing which no one will deny, I feel sure, and that is: *cogito ergo sum.* Further, as it is unlikely that we shall ever possess any other measure of reality than this thinking self—anyhow in this human wave—we must attempt some kind of a synthesis of these two versions of world reality, by understanding the nature of their creator, the mind. Here is evidently the source of present and future creative evolution, and the more stress

[1] *N.P.W.*, p. 89.

laid on the illusory nature of the world, the more persistently does the reality of the mind emerge.

I am in honour bound to state, at the very outset of this study, however, that the seat of the mind is so far undiscoverable; even if we say that it lies in the brain, this does not describe what works the thinking process, nor its nature. But even though every part of us be denied the honour of being The Mind, "neither the shaft, nor the wheels, nor the body, nor the yoke, being the chariot,"[1] as the Monk Nagasena proved to King Milinda, yet all the same there is something which *is* the chariot; this cannot be denied.

In default of being able to discover the mechanism of the mind, the study of it was left severely alone hitherto; philosophy contented itself with studying different modes of thought, or cognition, religion spoke of the soul, Yoga used thought to train men to a capacity for wider vision, but a study of how thought arose, the actual science of the mind itself, was never attempted till about a hundred and fifty years ago. Since then everything has altered, not only psychology but biology, physiology, zoology, have all contributed their share to a completely altered conception of man and his powers. Having been satisfied, since the dawn of intelligence, with regarding the world as composed of four elements, which together formed either a good or a bad design on the canvas of our minds, and which, according to whether we were holy or worldly, we regarded as real or unreal, suddenly, in the last hundred years, we have discovered an entirely new world composed of ninety-two elements—or if you prefer, merely two: the electron and the proton—and what is more extraordinary still: wave mechanics, quanta, relativity, and suchlike curious and incredible things. Are these also a reflection of our inner self, or does this mean that man has made a new step on the road of his cosmic evolution—that his mind has torn down one of the veils of matter in which it was enveloped? I believe this to be a fact, and that this new knowledge is the outer sign of a new development in the order of mankind, the first ripple that presages the rise of a new world.

For thousands of years we contented ourselves with regarding the earth as the mere food producer—then perhaps it struck some more awakened spirit that the differences in shape and form meant something more than food; differences in size, in texture, in temperature, were noted and stored in the memory for future use, and then some vague ideas of differ-

[1] Milinda Panha: *Sacred Books of the East*, vol. xxxv.

ences in colour, finally made up an aggregate of experiences, healthy or unhealthy, objects useful or baneful to man, out of which was woven the first mental conception of the three-dimensional world around us. After this we were satisfied for many centuries with regarding our world as the flat centre of the universe, over which constellations hung like lanterns, until at last some few wise men ventured to suggest that it might be round and only one amongst many similar worlds. Ultimately all men realised the truth of this idea; this again was progress. Another of our age-old illusions is the idea of a universe composed only of mass, liquid, fire and air. Some few in ancient times added the ether, but electricity or gas were undreamt of. Men never even troubled themselves to enquire into the real nature of the four elements they knew, nothing was known either of their origin or constituents until a short while ago; they were all in the condition of a boy I know who, when asked why the sky is blue, replied: "God made it so, of course!" But how could we ever hope to know anything about the God we thus accepted without question if we never even paused to consider His handiwork, nor troubled to learn anything about the laws that governed it, which, if He exists, must be His methods after all! The fact that some few saints "walked with God," and seemed to know something which others did not know, excited no special comment, and certainly did not seem to call for any special investigation. As in the case of all other natural phenomena, men were content to accept this fact without question!

Each of these steps in knowledge was a stage in the process of mind development, and I believe that, in the new phase upon which we are now entering, man will no more be content to accept anything without question, or to admit that the vast vistas which seem open to a few should be closed to the rest for ever. I think the circle of those who seek for true understanding is widening every year. One may observe small but not insignificant signs of this movement all around one if one cares to look; for instance, a very interesting sign of the times is the tremendous call for books like Sir Arthur Eddington's *Nature of the Physical World*, and Sir James Jeans' books on *Astronomy*. These are certainly works that would only have found their way into the hands of scholars some fifty years ago. There is an awakening taking place in man's consciousness, an awareness of the existence of something more than that which meets the eye—it might almost be regarded as the rise of a more widespread spiritual consciousness, for it

demands knowledge of the invisible world underlying the visible.

It has long been my opinion that mankind has reached a phase of development wherein knowledge, although still far from the level of the highest, has got to become more widespread; man can no more merely develop individually, he must carry his fellow-men along with him. For this development I believe two men are pre-eminently responsible, namely, the Buddha and Jesus Christ. They took knowledge from out of temple enclosures, and bore it into the light of day; they desired to help all men to obtain the enlightenment which they enjoyed; to open men's minds to wider knowledge; to make men realise the Way by their own efforts and experience, instead of accepting everything at second hand from the priests. "Seek and ye shall find, knock and it shall be opened unto you." That was spoken not to the wise but to the foolish, and since that day all men have felt they had a right to seek. And so seeking, they have suddenly discovered that what they had hitherto regarded as reality, was merely a blind, concealing something of a different nature altogether. Which is most real, we ask ourselves, the old reality or the new? In all probability both: one belongs to the dawning world of the mind, apparently unconditioned by sense activity; the other was a picture made by some other kind of faculty, out of the material contributed by the senses.

Counting this new condition of mind work, man now possesses four stages of approach to the world around him. There was firstly that simple recognition of differences in conditions, in food values, in the respective utility of various things surrounding him, which was the most primitive form of mental activity, relating only to the immediate necessity of self-preservation. Secondly, there arose the condition that is apperceptive and creative at the same time, wherein is displayed a certain activity from inside outwards. In this condition man attributes values to things according to some inner measure, which values appear to be purely arbitrary, since in nature as such it would be difficult to discover the existence of the seat of beauty, truth, goodness and the idea of God! "The mind has by its selective power fitted the processes of Nature into a frame of law, of a pattern largely of its own choosing; and in the discovery of this system of law, the mind may be regarded as regaining from Nature that which the mind has put into Nature."[1] We cannot treat this "law"

[1] *N.P.W.*, p. 244.

as a mere reaction to sense impressions, for there is a hiatus between one occurrence and the other, that is so far unbridged: at one end of the scale there are millions of vibrations a second, that are emitted in various doses by the green trees, the blue sky, or those red roses on my table, the waves of which, on meeting my eyes, travel along the various nerves to the brain centres, there to be transformed into the conceptions we know under those names. But at the same time, there is also formed a sense of awe, attraction or pleasure as the case may be. What is the connection, or what induces these latter reactions is as inexplicable to-day as it ever was. Only one thing is evident: the composition of tree-green-beauty into a single conception is the work of some inner activity, in the service of which the senses merely act as receivers.

But that our standard of values arises from entirely different sources to those that produce the conceptions of colour or form, no one can doubt, they developed with the rise of self-conscious man, and although it is undeniable that some animals distinguish right from wrong (anyone dealing with dogs or elephants, for instance, can bear witness to this fact), yet I think there is no doubt that these distinctions have only been inculcated in them by man; left to themselves, they are probably entirely unconscious of any values at all.

This standard of values is the most mysterious of all man's many qualities. Why an agglomeration of atoms called mountains, bathing their feet in a compound of mineral salts and water we call sea, on to which is thrown the reflection of a dead world we call moon, should arouse in some of us a sense of awe and ecstasy, is a riddle which no man can solve. This is something which neither biologist nor physiologist, neither physicist, chemist nor even philosopher can ever explain—it is something which belongs to a system of which we as yet know nothing. Has it perhaps some relation to a consciousness of a further state ingrained in the very composition of our cells, our glands, our genes, of which we are aware as of the distant peak towards which we are ascending, even though we do not see it as we climb the mountain sides? Does not the fact that the highest civilisations always produce the highest forms of art or wisdom give us cause to believe that, with the higher development of mankind, there come heightened faculties? And this holds out the promise that if we, as all mankind, achieved a higher standard of perfection than any we have known so far, powers, hitherto the

prerogatives of genius, would be the property of all men. There is undoubtedly some hidden motive in our perception of beauty, be it in art or thought, which has nothing to do with will, nor intellect nor yet necessity; it seems to be the urge driving us towards a more advanced condition, the promise of things to come. Jeans says of man that he is still a new-born babe with all the unexplored potentialities of babyhood; and until lately was merely concerned with his cradle and feeding bottle. But if his infancy has lasted 300,000 years, and has developed him from an animal condition to a creature possessing powers far more subtle than anything we have been able to discover in the whole universe before, we can imagine something of what might lie before him when he "grows up!" Seeing that every progress thus far has been from a more material condition into a lesser, out of which something of a completely immaterial nature is emerging, evidently this is the trend of human development, perhaps to end in complete freedom from matter altogether. But as even man's highest powers, those which cannot be classified with other material phenomena, are still born *out of matter*, and are inextricably bound to matter for their manifestations, it yet remains to be seen whether this partnership can ever be dissolved.

The scientific era, which is the third stage of man's development, and upon which he has just entered, is something entirely different from anything that has gone before; here man definitely frees his mind from all sense perceptions, and accomplishes a purely mental act of building up a fantastic world of intensely significant phenomena, which no eye can behold. We know, for instance, that there is above our heads something that is neither blue nor beautiful, which our minds perceive to be a vast inter-activity of light-waves, quanta and molecules. We have in this new aspect of things advanced a few steps forward on the path that must eventually lead us to complete freedom from the material universe, for we are beginning to realise a world to which neither sight, hearing nor touch have given us any clue, which is in fact usually the exact reverse of what our senses would have led us to believe, a world that is purely the offspring of our mental activity, I might almost say an imaginative world! For, indeed, without the imagination to start us on our search, it would never have been discovered. An inner urge drove some among men to question the evidence of their senses as to the nature of the material world, and the first perception obtained of an underlying elemental world was purely due to the mathematical

mind which constructs its buildings out into space, without any scaffolding of matter whatsoever. Afterwards experience is called in to bring these mental conclusions into some relationship to the life we know, whereas in the earlier phase, it was the mind that was called in last of all, to put its stamp on the facts of experience! I think if we analyse it that we must recognise that this third stage is a first step towards a more spiritual conception of existence. The mind is now throwing a much more definite image of itself upon the material screen. Before this, it seemed unable to do anything more than classify the conditions reflected upon it by the senses, and co-ordinate its activities accordingly—as the painter draws what he sees on the canvas.

If we consider the mental activities of mankind since the earliest times a little more closely, however, I think we may discover that in every generation there have existed some few men that were unwilling to accept the evidence of the senses as the final verdict. Until a few years ago, those who protested claimed from religion the revelation of a world more perfect than was afforded by ordinary life on earth, to-day it is to science that men turn for a solution of the riddle. And apparently they are justified in so doing, for, although religion has always maintained that there exists within man a non-bodily element, the soul, out of which such a new world might grow, yet there have always been many who doubted the existence of this somewhat nebulous entity. But I believe that now for the first time in European history there have arisen men who can tell us something definite about the subsoil of the mind, namely, the leaders of the new psychoanalytical science. We call this science new, but I am here bound to admit that the Hindu science of Yoga has forestalled us by some 1400 years in an attempt to reach what we now call the subconscious mind—what they call Buddhi—but very few, even among Indians, have ever succeeded in mastering that system, and certainly no European that I have ever heard of, although many have attempted it! We obviously need to be taught about the unconscious by other means, and I think that our new psychologists may truly claim to be opening the way at last, to a mind realm deeper than anything we have sounded in the human system hitherto, and which, though manifesting by means of the conscious mind, had so far escaped all definition. But this should not be mistaken to mean a resurgence of dualism, for it is rather a re-integration: "the pure intellect (Buddhi) transposes into the Universal

the data of the preceding faculties,"[1] at the same time as it floods and pervades all physical phenomena, and makes them One. It may in the end give substance to the age-old story of the soul!

II

We have now reached a point in the story of man's evolution which I regard as the entry upon the stage of a fourth condition, for in connection with the new conception of an unconscious or subconscious mind, we seem to escape for the first time from the limitations of bodily manifestations, and attain something which does not seem to be dominated either by our wishes nor by the conditions ordinarily regulating the circumstances of life. Here we seem to be making the first step into something outside of human conditions, but we are as yet a long way from being able to understand the new phenomena that have suddenly made their appearance, still less explain them!

That we are now at last learning something definite about the nature of the human psyche is primarily due to the genius of Sigmund Freud. He was the first man to investigate the age-old manifestations of the "soul" with the methods of modern science; but, although men's ideas on this subject have hitherto been of a nebulous and sentimental nature, this does not mean that the symptoms we now observe were not always there for anyone to see. The Roman Catholic Church has, since the beginning, been aware of the necessity of confession, which acts as a mental purification, an inner liberation, and in modern terminology sets the mind free of its repressions (depression they may call it), but they never knew the causes of this, nor attempted to give reasons for their rules in that matter. Undoubtedly, too, they made unconscious use of what is now recognised as the "parental complex," to obtain and use influence over their penitents, although they would certainly never admit it and may never have investigated the sources of the power of the confessional! The Hindu Yoga system also builds on a process of transformation in that same unconscious, whilst in the Greek initiation rites, "catharsis" was the term for a superconscious state to be achieved by the hierophant; modern psycho-analysts have borrowed the word and modernised the idea, but fundamentally both mean the same. But although the foundations of psycho-analysis may have been laid long ago in the methods employed by all religions,

[1] René Guénon: *Man and his Becoming*, p. 88.

and it is undoubtedly a scientific rediscovery of an ancient truth, still it cannot be denied that "by Freud's splendid achievement, many of whose implications have still to be worked out, scientific psychology has at length been enabled to escape from theory into practice, from the close atmosphere of the study, the laboratory and the lecture theatre into the vivifying breath of everyday life. It has for the first time been made applicable to all the manifestations of the creative spirit."[1]

The handling of spiritual powers which had until lately been relegated entirely to religious adepts "has been given to the enlightened layman to be used for the benefit of all mankind. . . . Psychology, which had become a purely abstract science, has been brought back by Freud to its proper field, research into the kernel of the inner life. He has disclosed the drama of the upbuilding of individuality, has made visible the medley of conflicting forces at work in the No-Man's-Land that lies between the conscious and the unconscious, in that twilight region where a trifling impetus may have far-reaching effects, and where past and present are intermingled in the most amazing complications. He has discovered and explored a world of vast extent, a cosmos pent within the microcosm of the body-mind, and yet for all its infinity of range so fascinating to contemplate in the logic of its invariable successions."[2]

It is only fair to say, however, that it was Count Mesmer, in the eighteenth century, who actually opened up the problem of the unconscious, but as he never succeeded in explaining even to himself the secret of the powers he possessed, his methods of mental treatment did not carry us any further, until Freud in 1890 made his sensational discovery of the manifestations of the unconscious, the so-called libido, and the means of diagnosing its contents and bringing influence to bear upon it. Once Freud had opened the way, his method not only transformed the general outlook of the European world, but it has also "given a new trend to all the basic problems of our civilisation and their genealogy. . . . Whether the libido is or is not sexually charged; whether the castration complex and the narcissistic attitude, and this or that article of the Freudian faith should be regarded as firmly established for all time—such matters . . . are of infinitesimal moment when compared with the outstanding change wrought in our world by Freud's discovery of the dynamics of the mind, and by his investigatory technique. Here we have a man whose creative

[1] *Mental Healers*, by Stefan Zweig, p. 359.
[2] Ibid., p. 361 ff.

insight has completely transformed the picture we form of our inner life."[1]

Since Freud's discovery of the actual existence of the "libido"—which is perhaps now more comprehensively termed "psyche"—and of the modern psycho-analytical method of approach to it, much has been done, and others are carrying on the investigations into all the fields of the mind, but there is no doubt that we owe it to Freud's genius if, after all the centuries of complete ignorance of what lies in the storehouse of the mind, we have suddenly discovered a new world altogether. But to say "discovered" does not mean that we understand it, as yet we are very far indeed from that; this new science of psychology has hardly been born, and when we think of the many centuries it has taken mankind to make any real progress in the study of astronomy or physics, we can imagine something of the depths of our ignorance on a subject that has only come to light in the last half-century! "Being still in its initial stages as a science, we lack the concepts and definitions with which to grasp the facts,"[2] which have always been so close around us that we have not been capable of seeing the forest for the trees. "Because we ourselves are psyches, it is almost impossible for us to give free rein to psychic happenings without being practically dissolved in them, and thus being robbed of our ability to recognise distinctions and to make comparisons. This is one difficulty. The other lies in the circumstance that the more we turn from special phenomena and come to deal with the spaceless psyche, the more impossible it becomes to determine anything by exact measurement."[3]

These words reveal something of the difficulties of the problem that confronts us. What is this "spaceless psyche," this "hinterland" of the mind, which seems to be a new world altogether, behind, beyond and inherent in the very foundations of all conscious and unconscious activities? In relation to it we are obviously "dealing with a region of psychic life outside consciousness, and our way of observing it is indirect. As yet we do not know what depths we are trying to plumb. . . . What the aim of this process may be remains at first obscure. We can only remark its important effect upon the conscious personality. . . . We might perhaps call this a new illusion, but what is illusion? . . . What we are pleased to call such may be for the psyche a most important factor of life—something as indispensable as oxygen for the organism—a psychic actuality

[1] Stefan Zweig: *Mental Healers*, pp. 262–3.
[2] *M.M.S.*, p. 88. [3] Ibid., p. 89.

of prime importance."[1] Of the nature of such "illusion" may be my dream of the Great Breath, but illusion or not, it is certain that the idea must have arisen in a world outside mental or conscious control.

This personal experience makes me realise that the world from out of which such thoughts come to the surface must necessarily be released even from the semi-substantial world of radiation, space-time, gravitation, etc.; and if we admit this, we must realise that we are here on the threshold of a much wider, more comprehensive form of existence than any hitherto known. If this psyche be admitted to be "spaceless," then there is obviously nothing within which it is contained, it must be free of the physical world ruled by space, continuing to use it only as the mechanism for its manifestations. We are here faced with the possibility of an altogether new factor in cosmic events, not merely the rise of a new wave, like a nebular wave or a planetary wave, but a new chapter altogether, something more like a new energy in the universe. Already in relation to living organisms, we seemed to discover the first traces of a new step in the course of physical evolution: they gathered to themselves all the materials of the physical world and, having freed themselves from subjection to the law of entropy, produced something unknown before, which evolved in the reverse sense to that pursued by the evolution of the universe until then. This fact seemed so extraordinary that only one inference could be drawn from it, namely, that we had entered upon the flow of the tide, the period of God's inhalation.

But even this, our wave of organic life, was still a period evolving within the bounds of the material frame, it still partially belonged to the old world. What we now perceive is the first glimmer of a wave more comprehensive than anything that has preceded it, for it may well be unlimited by any framework. So far it is still in its infancy, but even so there are little symptoms of new conditions here and there: certain people, for instance, are capable of discarding physical frames and of communicating with one another across any distance in the realm of the subconscious mind; others can describe experiences from afar of which their consciousness knows nothing; some read one another's thoughts, etc.[2] We may therefore presume that when this new wave has risen to its full height, it will discard physical frames altogether. Life arose out of the ashes of universes, and although to-day it still has its feet in

[1] Ibid., Chap. 3, p. 83.
[2] See *Extrasensory-perception*, by J. B. Rhine.

those ashes, by the time the universe has sunk to thermodynamical equilibrium, and energy is no more available for material formations, a new tide will probably be well on its way to the beach, having long since shaken off all dust and ashes. It will have gathered to itself all energies, all powers, all the inheritance of worlds, and be one step nearer the Source which draws it inwards towards itself.

An explanation of this "spaceless psyche" is almost impossible as yet. What could be learnt in half a century? I can only hope to give my reader an idea of what is known so far, in order that he may follow my later prognostication of the final course of the Breath of God. The first step to any attempt at explanation must be a study of all unconscious acts, words, dreams, reactions, inspiration, genius: "He who would fathom the psyche must not confuse it with consciousness, else he veils from his own sight the object he wishes to explore."[1] Only by treating these manifestations of the sub-mind as something entirely apart from conscious acts can we eventually hope to discover that to which the new psychology is opening the gates, namely, the world intuited by all the great religious teachers when they speak of the soul—that which lies behind the world we know and which comes forcing its way in from places and conditions which have so far escaped us. From all descriptions of it, this psyche does, in fact, sound very much like the age-old idea of the soul, but "soul" has always been a very comprehensive term, every religion, almost every human being, if asked to explain it, would give a slightly different interpretation, until in the last century its very existence was called into question. There are still many people in the world to-day who refuse to admit that there is anything at all beyond the conscious mind, although I should say most of us are sufficiently enlightened to recognise the foolishness of any absolute denials—the nineteenth century has opened our eyes to the existence of too many things which our ancestors would have regarded as sheer madness! "We shall do well to admit that there is justification for the old view of the soul as an objective reality—as something independent and therefore capricious and dangerous. The further assumption that this being, so mysterious and terrifying, is at the same time the source of life, is also understandable in the light of psychology,"[2] for even the "I" itself, the "ego-consciousness" has been shown to be an outgrowth of the unconscious, since unconscious life exists before any trace of the ego-consciousness is present.

[1] *M.M.S.*, p. 84. [2] Ibid., p. 211.

I must here mention another fact in relation to this unconscious, which has unfortunately come to be regarded as its most noticeable characteristic, namely, its connection with repressions and inhibitions. There is no doubt that most people only know and admit its possible existence in this relationship. Now although the conscious mind does undoubtedly repress and inhibit emotions which then drop down into the unconscious, and there sometimes carry on a nefarious activity, it must not be supposed for this reason that the unconscious is only a faint reflection of its more famous brother, for this is certainly not the case. The unconscious works entirely independently of our conscious activities, and even possesses modes of expression entirely its own, as seen by its use of symbols in dreams; it has "contents peculiar to itself which, slowly growing upwards from the depths, at last come into consciousness." Therefore also in relation to the things thrown down into it by the mind, it acts in uncontrollable ways. For instance, in the now famous cases of shell-shock: when the mind suppressed unpleasant memories, these descended into the unconscious, which then proceeded to deal with them by methods all its own, turning them into a paralysed arm, temporary blindness, and other infirmities, all of which were curable by forcing the conscious mind to take back into itself and digest the experiences it had attempted to suppress. Those were, of course, exceptional cases, but they enabled the new school of psychology to learn more about the subconscious in four years than could have been learnt under normal circumstances in a century. For the unconscious is always acting but it is rare, except in special circumstances, that we are given opportunities of observing it. "All psychic contents which either approach the threshold of consciousness from below, or have sunk only slightly beneath it, have an effect upon our conscious activities,"[1] but the consciousness below, on the other hand, seems to wish to choose what it takes to itself from above—if things are thrust into it, it rebels!

Within that dark space below the mind, where indefinable activities take place, and about which it seems so difficult to make any positive statement at present, there seems to be one point which, although differently explained by various schools, yet seems to be an unquestionable fact, and that is the "complex." "Whatever else may be taking place within the obscure recesses of the psyche . . . one thing is certain: it is first and foremost the so-called complexes (emotionally-toned contents

[1] Ibid., p. 37.

having a certain amount of autonomy) which play an important part there. . . . According to our best knowledge about them, complexes are psychic contents which are outside the control of the conscious mind.) They have been split off from consciousness and lead a separate existence in the unconscious, being at all times ready to reinforce or hinder the conscious intentions."[1] They can make or mar our lives, make us sane or otherwise, they enter into everything we do or think, and yet are themselves dependent on something that is completely free from our control. In fact, it might be said that we do not live our lives but that we *are lived* by our complexes. But where they lie and what produces them is at present a complete mystery. Various schools have at various times placed their seat in the brain, in the heart, at the pit of the stomach, or the basis of the spine. This is, however, immaterial, what appears evident is that the complexes are a kind of knot, or perhaps a volcano of intensified energy within the unconscious. The furious energy at those points bubbles up above the surface mind, and thereby enables us to obtain some insight into the activities of what lies down below. As a result of what little understanding we have gleaned in about fifty years of observation of these upheavals, it is now considered probable that we have another nature within ourselves that draws upon our conscious activities, uses our conscious mind, but is itself uncontrolled by it; it seems to be a kind of ultra-physical condition manifesting through the human frame, perhaps another dimension of world phenomena, with which our fourth condition is the link?

We must not imagine, however, that we can in any way apply to that dimension the criteria we employ in relation to the other four conditions, this has nothing to do with our ordinary experience of life; it may draw upon it or, as we saw, have things inhibited into it by the conscious mind, but it uses all as it deems fit. It does, however, give us of its wisdom, "here and there it does rise to the level of consciousness and from such islands proceeds all knowledge."[2] We shall learn a great deal more about it as a *condition* when we come to a study of the lives of those among men who have possessed the highest knowledge, and I believe that the new psychology will lead to a complete revision of our conception of their lives and will bring many things to light which were so far inexplicable.

It is not to be expected, however, that the prophets of our new science will not make as many mistakes as have all real

[1] *M.M.S.*, p. 90. [2] *N.P.W.*, p. 277.

seekers after truth. Jung, for instance, who has pushed it furthest up to date, does not at all agree with the Freudian idea that the libido is merely the shadow side of human nature, composed of all the uncivilised passions, which are like chained wild beasts ready to spring out directly they are unleashed—that it is a kind of primeval slime. We need only think for a moment of all those who have lived most undoubtedly from the wisdom discovered "within," to disprove that idea, for what they found in their inner selves, from which they drew their inspiration, was certainly more like divinity than bestialism! But no scientific tenets are final—in the search for Truth it is inevitable that mistakes be made; only scientists, unlike doctors of the Church, are ready to admit their errors and revise to-day their opinions of yesterday. It is also necessary that, in relation to this new psychology, we should learn to free ourselves from moral judgments; if the psyche is a universal power, as it seems to be, there is not more morality or immorality in it than in the stars on their courses, it contains all things and all possibilities. The conscious mind is the guardian of gates which open onto an inexhaustible storehouse; and even if the collective unconscious within the gates be full of "unnamed things from the jungle and primeval forest," it is equally the seat of genius and boundless beauty and perfection. "Since we have literally no idea of the way in which what is psychic can arise from physical elements, and yet cannot deny the reality of psychic events, we are free to frame our assumptions the other way for once, and to hold that the psyche arises from a spiritual principle which is as inaccessible to our understanding as matter.... To the primitive man the psyche is not, as it is to us, the epitome of all that is subjective and subject to the will; on the contrary, it is objective, contained in itself, and living its own life. This way of looking at the matter is empirically justified, for not only on the primitive level but with civilised man as well, psychic happenings are in a large measure withdrawn from our conscious control . . . here we are with our immediate experiences of something that *is*—something that has taken root in the midst of our measurable, ponderable, three-dimensional reality, that differs bafflingly from this in every respect and in all its parts, and yet reflects it. The psyche may be regarded as a mathematical point, and at the same time as a universe of fixed stars.... If it occupies no space, it has no body. Bodies die, but can something invisible and incorporeal disappear? What is more, life and psyche existed for me before I could say 'I,' and when this 'I' disappears,

as in sleep or unconsciousness, life and psyche still go on, as our observation of other people and dreams informs us. . . . We are inclined to assume that, in the last instance, all knowledge comes from without. Yet to-day we know for certain that the unconscious contains contents which would mean an immeasurable increase of knowledge if they could only be made conscious. The unconscious perceives, has purposes and intuitions, feels and thinks as does the conscious mind. Only in one respect is there an essential difference between the conscious and the unconscious functioning of the psyche. While consciousness is intensive and concentrated, it is transient, and is directed upon the immediate present and the immediate field of attention ; moreover, it has access only to material that represents one individual's experience stretching over a few decades. . . . But matters stand very differently with the unconscious. It is not concentrated and intensive, but shades off into obscurity ; it is highly extensive and can juxtapose the most heterogeneous elements in the most paradoxical way. More than this it contains, besides an interminable number of subliminal perceptions, an immense fund of accumulated inheritance-factors left by one generation of men after another, whose mere existence marks a step in the differentiation of the species. . . . Looked at from without, the psyche appears to us to be essentially a reflection of external happenings. . . . But the truth is that the unconscious is always there beforehand as a potential system of psychic functioning handed down by generations of men. The collective unconscious . . . seems not to be a person but something more like an unceasing stream, or perhaps an ocean of images and figures which drift into consciousness in our dreams or in abnormal states of mind,"[1] one might say that when the will, instrument of consciousness, looses control, then is the unconscious set free.

I have permitted myself to dwell long on this attempt at a description of the unconscious, but as the science dealing with it has so often been misrepresented, and there are only two or three people in the world who really understand what is at stake, I felt obliged to go for information to headquarters instead of trusting to my own lay definitions ! There is one last point, though, that I should like to stress, for it seems to me that this throws a new light on this science altogether, and places it in a perspective different to any other science in the world.

Psycho-analysis started by being a method of treating the

[1] *M.M.S.*, Chap. IX.

sick, the mentally abnormal; Freud was himself a certified doctor, and it was his work, *as a doctor*, that led him to the far-reaching discoveries that have placed him in the front rank of the scientific investigators of our time. Now from this starting-point psycho-analysis has developed through three stages: Freud's may be considered the stage of investigation and interpretation, Adler carried this one step further, and became an educator of men's minds for the new ideas, and Jung is now at what he himself calls the stage of transformation, although neither this nor the others are to be regarded as the final stage. We must never forget that we are still in the first generation of the protagonists of this new science! But, though it may have started as a process for the investigation of mental disease, the mental attitude of those engaged in the pursuit of this science has to be totally different from that of other men of science; the psycho-analyst by the very nature of his work cannot be thinking of himself nor be working out a theory for the sake of the theory, if he does so he defeats his own ends. Only by putting himself wholly into the mind of another for the perfectly disinterested purpose of helping him can the psycho-analyst hope to effect a cure. Therefore it is evident that this science requires a very special training and aptitude on the part of the analyst, his art has absolutely nothing in common with other arts or sciences—even the medical one; an astronomer need not have been to the stars to be able to describe them, a physician need not have a disease in order to diagnose it correctly, but a psycho-analyst is "as much a part of the psychic process as is the patient, and is equally exposed to transforming influences. Indeed, if the doctor is more or less inaccessible to this influence, he is correspondingly robbed of his influence over the patient."[1] He must, therefore, before all else study the reactions of his own psyche to all the influences that can be brought to bear upon it, and must be in possession of full control over his own powers before he can attempt to enter into the psychological problems of another, without danger of losing himself. If he is not a stronger and wiser human being, with a fuller understanding than his patient, it might well occur that the patient would be the one to decide the final issue! This fact has led to the rule that before subjecting others to analyses of their subconscious, the psycho-analyst should himself be psycho-analysed, and thereby learn something about the condition of his own soul; only thus can he hope to be in a position to advise and help others. He must

[1] Ibid., p. 58.

in short face the task which he afterwards requires of his patients.

The unfortunate fact that a good half of so-called psycho-analysts have omitted to obey these instructions is responsible for much of the harm that is being done by the many irresponsible people who practise that profession to-day, and for the consequent unfair contempt which many serious-minded people levy at the practitioners. There being no regulations to restrict the practice of psycho-analysis thus far (so long as the practitioner prescribes no medicines), there are many "analysts" who are on the level of quack doctors; but because one of these last tries to cure a patient suffering from typhoid fever, by applying a dead, white, female rabbit to his stomach, this need not induce in us a contempt for the whole medical profession! Before the danger of allowing uncertified people to practise medicine was recognised, many must have suffered from the ill results of quacks, as they so suffer to-day from self-appointed analysts! Every science in its infancy makes many mistakes, but we need not bann it for that reason; on the contrary, by recognising the mistakes that are being made, we may discover the proper course that this science must take, and better understand its potentialities.

"Physician heal thyself" is truer now than it ever was, and I think there can be no doubt that this is what both Jesus and the Buddha accomplished in the wilderness; certainly in Jesus' case, that self-healing did result in powers of healing others that closely resemble those of the psycho-analyst of to-day. And even as theirs was undoubtedly a course of strictest mental and physical discipline in search of the "Kingdom of Heaven" that is within, so to-day, "in dealing with himself the (analyst) doctor must display as much relentlessness, consistency and perseverance as in dealing with his patients. To work upon himself with an equal concentration is truly no small achievement; for he brings to bear all the attentiveness and critical judgment he can summon in showing his patients their mistaken paths, their false conclusions and infantile subterfuges. . . . For who can educate others while himself uneducated? Who can enlighten his fellows whilst still in the dark himself? . . . Just as the discovery of the unconscious shadow-side once forced the school of Freud to deal even with questions of religion, so the latest advance in analytical psychology makes an unavoidable problem of the doctor's ethical attitude. . . . What was formerly a method of medical treatment now becomes a method of self-education, and therewith the horizon of our modern

psychology is immeasurably widened. The medical diploma is no longer the crucial thing, but human quality instead."[1] In saying this we are opening the potentialities of analytical activity to all men, but that does not mean that this science is easier of attainment than the medical diploma—on the contrary, I think real human quality is a far more rare and precious possession than any M.D. Many may become doctors, but few become saints, and although no matriculation is required for entrance into the university of self-training, few there be who take the highest honours! The nursery and the schoolroom (or, at worst, the prison) have been considered sufficient schooling in this direction, but if ever the science of analytical psychology is to develop its immense inherent possibilities, it must undoubtedly begin by an ethical training very different to that with which we have been contented so far. Such training was the object of the Yoga system, but we Europeans have never attempted any systematic training of the unconscious; not recognising its existence we have naturally concentrated on training the mind, of which we do think we know something; but if men are ever to bring to fruition the power that lies within, there can be no doubt that some kind of self-discipline, other than mental, must become the way of all men.

If ever that emerges which is to form the next forward stage of "reassembling," it seems probable, considering all these facts, that it must arise out of the depths of the unconscious mind. But first of all that unconscious will have to cease its individual existence and deploy its universality, if we may judge from the fragmentary glimpses we obtain of it at present. But, as a spur on our way, there is the example of some rare individuals who undoubtedly did enter into possession of a more universal consciousness, and if this has been accomplished once, there is no question that it might be done again, *if men so desire!* One of the greatest of these forerunners once spoke out of the depths of his unconscious and proclaimed: "I have neither death nor fear of death. Nor was I ever born, nor had I parents, friends or relations; I have neither teacher nor disciple; I am untouched by the senses; I am without form without limit, beyond space beyond time; I am in everything; everywhere am I."[2] Realisation of that would be the greatest step towards the Absolute that could be made by man, but if it is ever to become a universal condition the new excursions into the realm of the unconscious will require

[1] *M.M.S.*, pp. 59–61. [2] Śankaracharya.

our whole undivided attention. We are very far from this at present, but I have no doubt that once men realise the full implication of the state of consciousness which can express itself in words like the above, they must undoubtedly leave all else and follow this.

CHAPTER V

WHERE LIES REALITY?

WE have now discovered four stages of development in human consciousness—or mind; we have traced the gradual emergence of mental powers embracing ever wider circles of ideas, until the gates have opened on to something outside our conscious mind which has been re-christened: psyche. From a simple reaction to, and registration of sense impressions, on a basis of which our daily life is built up, to the completely a-material nature of the unconscious—from impressions we shared with animals to conditions freed from the restraint of the conscious mind altogether, we have made a vast stride towards final emancipation from physical limitations. And undoubtedly the final stage of all, if we continue to pursue this line of development, must be a complete transubstantiation of everything material into some form of universal mind-energy, that will encompass all things, and be free for ever from the physical world as known hitherto. A state will then be attained in which neither form, size, colour, virtue, beauty, ugliness, electrons or protons, to-day or to-morrow, will have any more importance whatsoever, and only those things will still exist which belong to a different world altogether, things of a completely insubstantial nature: law as such, truth, creative evolution, all those inexplicable motive powers that are behind all art and all religion. This will be the beginning of a new wave:

> "Higher than the senses are the objects of sense;
> Higher than the objects of sense is the mind;
> And higher than the mind is the intellect (buddhi)
> Higher than the intellect is the Great Self."[1]

We have begun to perceive the "intellect," it must some day lead us to the Great Self, but before that many waves must rise and fall to carry us nearer into the Shore, we cannot hope to escape any one of them.

[1] *Katha Upanishad*, 3–10.

Our present human stage must therefore be our chief concern to-day for, until we enter the next stage beyond man, all developments can only take place by means of the living body, they must evolve from out of its framework, and must inevitably stand in close relation to it : the physical and the mental world are at present two worlds in one, the outer and the inner, but " the outside must become the inside " if the Kingdom of Heaven, the next stage, is to come. So far I have been pursuing the evolutionary path of the physical world, in both its inorganic and organic manifestations, but my chief preoccupation throughout has been to follow the tracks of the non-physical Law of Periodicity. In so doing, I think it must have become clear to all, that there is a continuity of action inherent in the activities of this law, which would make it appear probable that, through its instrumentality, something is being achieved that is over and above the incidents of any mere phenomenal events, of an importance beyond that of the universe itself. But whatever be the end in view, it is unquestionable that the human stage is an important one in the evolution of the whole, and it is therefore necessary, before attempting to go beyond man, that we should understand how much there may be of reality in this human wave, on which to base our further construction : can we regard anything we know as real, or is everything merely illusion, as some religions assert ?

I do not think that there can be any doubt that the ordinary conception of the physical world is one purely relative to the brain of man ; we cannot deny that with a slightly different construction of mind we should regard it entirely differently. It is even doubtful if any two men see things identically the same. There are certain conventional signs which we employ by common consent to distinguish one thing from another, and the mental image of the *quality* of the thing corresponds to the name applied to it in the eyes of all men alike, but we have no means of knowing if its appearance is the same for all people. The clearest proofs of this diversity of sense apprehensions in men are in the eye for colour, or the ear for music ; for instance : we know that no two people in the whole world hear music alike. My neighbour hears supreme beauty in an Adagio of Mozart, which leaves me cold, whereas I find it in Bach's Passacaglia, and a third may find the same in Gershwin's Symphony in Blue ! Clearly we none of us hear the same sounds, but even in our more material perceptions I doubt if we are any more alike. I speak of a table, for instance, everyone knows that I mean some kind of a flat board on legs, upon

which things may be deposited, but, whether in looking at the table another sees it as I do is impossible to discover—hence the varieties of tastes and opinions. The nearest approach to real agreement that can be met with among human beings is when, by mathematical calculations, various people arrive at the same conclusions. This would seem to prove that it is in mental principles alone, and not in anything apprehended by the senses, that men can arrive at Truth, therefore it is obviously also here that we must look to find Reality.

"If Matter were participant and received Reality to the extent which we are apt to imagine, it would be penetrated by a Reality thus sucked into its constitution. But we know that the Entrant is not thus absorbed: Matter remains as it was, taking nothing to itself; it is the check to the forthwelling of the Authentic Existence; it is a ground that repels; it is a mere receptacle to the Realities as they take their common path (of emanation) and here meet and mingle."[1] I think it is clear that the periodic path we first traced through the universe was controlled by matter: when the latter had become sufficiently scattered, one period ended, and a fresh period arose elsewhere. Taken as one, the entire first period led to the dead ash of universes, which "repelled" the "Real" energies and started them on a counter-period. But although one periodic wave after another coursed over the surface of matter, which under their dominion took all shapes and forms, it is more and more certain that in matter the "Entrant" was never "absorbed"! Protons and electrons were, as Plotinus says, like "reflecting vessels that are often set against the sun to produce fire," but never the fire itself!

Therefore if there be no reality in matter, which constitutes everything of which the human mind has taken cognisance thus far, whence comes this mind's unquenchable thirst for a Reality which it has never experienced and yet has sought unswervingly throughout the ages? In seeking to solve this riddle, we should remember above all else that the great Breath which we have been attempting to comprehend, must originally have emanated from some source unknown—Plotinus would have called it the "Authentic Existence," Christians "God," and the Mahommedans "ALLAH," although no title has ever brought us any nearer to an explanation.

In the beginning of our cosmology, we saw a vast unity which is the nearest we have ever got to that Existence; but as matter spread further and further away from its source,

[1] Plotinus: *Ennead*, III, 6–14. Compare above, pp. 142–3.

it scattered its nature of Oneness, and apparently lost itself in the immense diversity of phenomena in the universe. But, if once the universe started on a period of regathering and reconcentrating into some form of organised unity again, it is inevitable that in the course of time, be it however long, the One should re-collect all things into Itself and reassemble all that had been scattered. As we descended the ladder of entropy from the primal One with "mathematical precision," so may we re-ascend it into the future All-One, when once the first definite traces of reassembling are found. Any concentric motion must have as its certain goal in ultimate unity—a condition closely resembling that from which the Ebb-tide once started on its outward course. Seeing that there is apparently no reason to doubt that such a movement has begun, being a necessity of the universe, we cannot expect to hinder it, we may only retard it by continuing to oppose ourselves to movements of unification. We might assist it instead, if we used our new-born consciousness of the ways of Periodicity in order to raise a new wave that would move on to ever greater unity, finally embracing the whole earth. That is certainly the only way by which a further step might be taken towards the ultimate goal.

According to present calculations, life took some 300 million years to evolve on this planet, and something like 300,000 to concentrate itself into a body containing mind and consciousness; on the basis of the past rate of the cooling off of this planet, and the consequent evolution of life, it might seem easy to prognosticate the length of time this present stage of physical organisms, namely man, has to live before the new all-spirit wave of life will be free of matter altogether, this last having dissolved into radiation. There are, however, two facts which make this estimate somewhat precarious, and render our durability shorter than might have been expected at first: (*a*) the increasing acceleration of dispersal of bodies in space, which may render our planet too cold for human habitation sooner than we imagine, the rate of cooling off heretofore is no absolute criterion for the future; (*b*) the increasing acceleration in human mental development. If we consider all the knowledge acquired by mankind from the beginning of recorded history until 200 years ago, and then realise what the mind of man has done in these last two centuries, we might conceive that it might take only half its initial 300,000 years to free itself from the physical body altogether. There is also another factor in this matter that

should be considered. We saw above that it is the glycogene stored in the body that feeds the brain and the nervous system; it must follow that the more powerful the brain becomes, the greater must be its demand on glycogene. There must then come a day when, even though by that time men be wise enough to live on food containing the maximum of glycogene, the demand will be greater than the supply, this being to a certain extent limited by what our stomachs can digest. If our estimate of the future growth of the mind be correct, it must give increasing work to the brain and nervous system which will use up ever more glycogene, and even though the body make every sacrifice to produce what is required, there may come a day when it is literally eaten up by the mind. But if all the statistics collected in this work be correct, the body must, in dying, give up its ghost in mind energy, which will be a synthesis of the physical and mental worlds in one.

This is not a wild speculation, but seems to me the necessary conclusion to which biological data must lead us, and I cannot help thinking that the brain acceleration stands in some kind of relationship to the acceleration of dispersal—but for this I have, of course, no proof. But one thing I do feel certain of, and that is that in the future a mere mechanical acceleration of any sort will not be sufficient, man must some day apply his mind not to scientific speculations, not to the invention of better machinery, but to the escape of his own soul from the limitations of all these things. We might count on a vast increase in the velocity of progress, if evolution were governed by the concentrated effort of all enlightened minds, instead of their being immersed in the immediate needs of daily life as in the past. Some few of the greatest men have realised these facts, but how little can they do as against the overwhelming weight of public opinion set in other directions. But we only need consider the history of the nineteenth century to see what men can accomplish if they one and all set their minds to work in one direction, what then could not be accomplished if all men over the whole earth combined to produce a new form of life altogether? That this is not only possible but inevitable sooner or later, I have not the slightest doubt, and the more men strive to clear the surface of their minds from the clouds of material preoccupations, the more distinctly will they behold the inner cord that has linked up the past and will thread the future. And as they learn to know and use the power of their own minds, they will reach an understanding

so much more vast and all-embracing than anything dreamt of heretofore, that it will undoubtedly move worlds.

Before vision can be thus perfected, however, there must necessarily be a long period of preparation ; but now that the new psychology is teaching man a new understanding of himself he must eventually realise his many undeveloped forces, and ultimately all enlightened minds must consciously aim at building up a condition in which the outer world will conform to the inner, and thus create a harmony born of a wisdom that seems to be the undertone of the universe. And then, even though the spirit still remained chained to the material body, it would control it for its own ends, instead of being enslaved by it as at present.

But, just as the mountaineer only reaches one peak, to discover that there is yet another behind it, so even at this point the mind would discover that it had not really reached the summit Reality, and it would still continue to aim at a complete freedom from something that it would discover to be the shackles of the body itself. Demanding something more than mere satisfaction, as it always does, the mind will not rest content until it is in possession of a complete knowledge of all that may lie behind what the senses convey but poorly ; it must forever strive to detach itself from subjectivity to the physical body until the day dawns when that body is left behind on Golgotha ! Out of these aspirations arose the religions of the past, to-day men go to the new psychologists for enlightment on what may underlie consciousness, and undoubtedly their eyes are being opened to all kinds of phenomena which apparently have no connection whatsoever with the knowledge of the world that springs from sense perceptions—which was our only knowledge until about a hundred years ago. Now we know as a fact that there exists a realm which is not dominated by our subjective will or desire at all, and of which we are forced to admit the existence, apart from any expectation or desire for it. And therefore we might justifiably regard this as the first ray of a Real World, that is dawning on our minds.

This idea is not completely new, however, for the mystics foreshadowed this aspect of affairs long ago, and throughout all ages always aspired at detaching their minds from the conscious ego, in order to enter a wider consciousness, and attain Truth free of all illusion. The only difference between our time and theirs is that they were considered men apart, illumined by God, whereas we now know that all men who

earnestly and sincerely dedicate themselves to the acquisition of knowledge of the unconscious can learn to use it for the good of themselves and others.

To-day the soul is no more discredited by the learned as the illusion of women and children; we know that man's relative existence is but a passing phase, and that underneath this phenomenal world there must lie something permanent, to the attainment of which this world's life may be but the stepping-stone. And once this is admitted, the mind may enter its true province at last, namely, to be the user of stepping-stones to reach the permanent world on the other bank, which is free of the last vestiges of materiality for ever. This task will not be inordinately difficult for it, since inherent in the mind's very construction lies the nature of crosser of such stones; for, even if we chose to regard everything—even the Quantum theory, which is often regarded as the first light of Reality that has ever dawned upon us—as the creation of our own subjective mind, that mind in itself escapes this limitation. Although it may be able to analyse all things and, in the last instance, wish them into existence, it cannot analyse itself. It may register what is already past, but its own present it does not know. It is clear, therefore, that somewhere within the mind lies the secret of the Reality we seek, in so far as it relates to mankind. Here lies that which is, above all, not the subjective creation of our bodily functions any more than it is of our dreams or desires; the great lesson: "Know Thyself," was not meant to urge man to understand more of his own individual nature—it was a call to him to know what IS MAN. If once he knows this, it must follow that he will have made a vast stride towards the discovery of Reality, and be well on his way towards the next period, the next rise of the Wave.

The search for Reality has driven men to every advance in knowledge that has been made in the last 5000 years, and as each step is taken, it is realised that this is already no more the "real," and again the mind goes peering into the mists of a further Unknown. Reality is the one thing about which the mind is completely objective, for, without ever having experienced it, it knows unerringly that it has never reached it. Nothing in the whole subjective world can masquerade in its cloak. Therefore it still continues to be the goal of all sciences, philosophies and religions, and it leads us on to ever renewed efforts as do the ever receding mountain peaks. Clearly this visible world is not Reality, therefore we are

confronted with the fact that if we are to find it anywhere, it will have to be in the, as yet uncharted, unconscious mind, and certainly when I consider this proposition, it does not present insuperable difficulties to my mind, as is the case with any other suggestion that is made to solve the problem!

Perhaps when Truth at last discloses itself, we shall realise that mind is but the subjective expression of that which it now seeks to know objectively, and man's present condition will be seen to be as much of an impermanent element as the physical world from which we are emerging appears in the eyes of the enlightened physicist! If, however, my reader suspects me of being merely a latter-day adherent of the doctrine of Maya, I would refer him to Sir Arthur Eddington's idea of the world; he says: "*That which is*, is a shell floating in the infinitude of *that which is not*,"[1]—matter floating in an infinitude of mind energy, of which no one can say where it lies, nor state wherein "it is." In so far do I believe in reality and unreality, and I think that in this, East and West, ancient and modern, meet on common ground, and prove by the unanimity of their testimonies to what is not Reality, that here, man intuitively senses something of eternal Truth, and we may the more unhesitatingly pursue our attempt to distinguish "that which is" from "that which is not."

For many centuries religion replied to all questions of this kind by saying that: God is the only Reality, but no one may ever know Him. To-day, however, the mind is no more satisfied with this somewhat naïve reply, it demands to know of what stuff its dreams are made, in the hope of ultimately discovering the Absolute—its Prototype. If mind-stuff or Intellectual Principle—both of which belong to the "a-material" realm—be discovered to be the kernel of this whole present existence, then necessarily the less materialistically we see and feel, the nearer must we approach to the unmaterial Source.

For this it is obviously necessary that we should understand as much as possible, not only of the mechanism of the mind as it is in itself, but of its capacities for future development. Psychology, psycho-analysis, psychiatry, or whatever one likes to call it, is the baby of sciences, and has done wonders in the short four-score years since its inception, but in India the art of the development of subconscious mental powers is almost as old as religion itself. Long before we in the West ever dreamt of such possibilities, their system of Yoga

[1] *N.P.W.*, p. 83.

harnessed what we have hitherto vaguely known as soul, into a very proficient instrument for the development of man on the path to realisation of an ultra-physical realm. But we are now moving forward at last, we do now recognise and admit the existence of many things for proclamation of which our ancestors would have been burnt at the stake, the powers of the subconscious mind, for instance, or of suggestion, auto or otherwise. And further I do not think that there can be any question that it is in this direction that any future development must occur. If we are to realise anything of the nature of the next wave towards which we are driving, I can but repeat: it is in the mysteries of the unconscious that it must be sought.

Of course the question that arises here is: can the mind of man be regarded as sufficiently perfect to be capable of containing within itself the elements that will eventually lead to Authentic Existence? This seems a good deal to expect, but even though knowledge of itself and its own powers be still incipient, still, containing as it does the capacity for roaming the entire universe in its quest for enlightenment, we cannot doubt that the mind will eventually delve down into its own depths and discover its own sources. And there at the basis of everything must be the leading string that has been inexorably leading the universe forward through all the stages of its output, and will continue to lead it through its intake, till final consummation is achieved. Until man appeared on earth knowledge of this leading string—not only of its nature but of its mere existence—could never have been obtained by any universal body, but when with self-conscious mind arises the power of self-analysis it must only be a matter of time—a hundred or a million years—before man throws off all bodies, and experiences the Reality underlying himself and all else.

Supposing we were to regard the universe as one of those boxes of babies' blocks which fit into one another, getting smaller and smaller as they go inwards. Only, if such a thing be conceivable, the universe blocks fit inside one another and grow larger and larger as they go inwards—until the last encompasses all. In order to reach that innermost One, we have to uncover block after block, but we may be sure that the outermost is an exact counterpart of its innermost prototype, and therefore if the mind be regarded as one of the outer blocks, perfect knowledge of itself must eventually mean an understanding of the innermost Whole. But that innermost is

not a light hidden under a bushel, it is one that streams through a keyhole and illumines the whole room—the living mind even now is illuminating the whole physical universe, but when a living being attains perfect knowledge of his whole inner self, he must inevitably be flooded by the undiluted rays from the source of all knowledge within.

That such rays are here and everywhere cannot be doubted, there can only be a question of all or nothing where the radiation of All-mind is concerned, but although a diamond be radiating the sun's rays, it depends on the turn of my hand whether they gleam in my eyes or not! And once we realise that our minds contain the rays of Infinite Sunshine, we cannot but spend our lives turning and twisting their facets till the rays shine clear "as the light of the morning when the sun riseth, even a morning without clouds."

CHAPTER VI

BEYOND SPACE-TIME

I

THE next step on our way to a comprehension of mind and its capacities for development must be an attempt to gauge the nature of its limitation by what is regarded to-day as the framework of the physical universe, namely, space-time. Is the mind world contained within this two-fold enclosure, or does it transcend these limitations, as the new analytical psychology would lead us to suspect? Belonging structurally to the physical world, does the mind extend beyond it? On this point depends all that can be known of the future development of our present wave and of the rise of the next. If, by means of the mind, we can pass beyond the conditions which limit this world, even only on rare occasions, or by accident; if only one or two per cent in the whole history of mankind have accomplished such a feat, and thereby experienced a state of heightened susceptibilities and faculties, then, seeing that they started by being men of like nature to that of all mankind, they might be presumed to be forerunners in a state to which we all possess the key in characteristics common to the human race. And, further, it were no absurdity to conclude that all might achieve the same results with the same human nature rightly handled! The crux of the whole matter seems to lie in this question of space-time, and it is therefore necessary before all else to determine whether it be an immovable barrier beyond which we as men cannot pass, or whether it be only the four walls necessitated by our present conception of the universe.

Space and time have since the beginning of religion and philosophy formed the framework of our mental picture of the world, but according to Minkovsky's interpretation of the principle of relativity, space and time now appear in a new light altogether: they now form part of one continuum, "in

which it is impossible to separate the space from the time in any absolute manner."[1] The three dimensions of space and the one of time together form the four-dimensional world which scientists assure us is the realm in which we live and of which our consciousness has cognisance. Eddington says of this: "The system of location in space, called a frame of space, is only part of a fuller system of location of events in space and time. . . . By considering time and space together, we have been able to understand how the multiplicity of frames arises. They correspond to different directions of section of the four-dimensional world of events, the sections being the 'world-wide instants.'"[2] But, although it may be easy to say: "multiplicity of frames," and we may imagine we have thereby said everything, we are still very far from realising its implications, and if we are ever to escape the limitation of space-time, we must understand something of the nature of the obstacles against which we have to contend. Only thus may we be in condition to realise something of the nature of the wave that might arise if ever the limits of this present one were left behind.

Present-day philosophers and scientists tell us that any progress in the evolution of mankind must be achieved through a different Time relationship, but, if Time be something more than merely one wall of the four which encircle our world, it must evidently contain within itself some characteristic which has so far escaped our notice. Professor Alexander says that: "Time does with its one dimensional order cover and embrace the three dimensions of space,"[3] hence the time factor is not only one among four but the chief among them, and in a sense the container of the other three. If, however, it now contains the three dimensions we exist in, it must have contained the one and the two dimensional worlds as well, therefore Time seems to be something like the leading string that has drawn organic life from one dimension to another in ever-widening circles. In a former chapter we gave a sketch of the rise of life until it reached the unicellular stage, but since biologists admit that they are still very much in the dark as to how the many-celled animals arose from their single-celled ancestors, and as the only thing "that is tolerably certain is that of all the many attempts of animals to solve the riddle of a larger life only two succeeded, those that originated the race of sponges (which, however, turned out a blind alley) and those

[1] *Mys. Un.*, p. 101. [2] *N.P.W.*, p. 61.
[3] *Space, Time and Deity*, Vol. I, Chap. I.

that gave rise to Cœlenterates and so to all other Metazoa."[1] I think I may justifiably leave the question of the evolution of bacteria into metazoa severely alone. There is, however, one question in relation to multi-cellular organisms when once they do appear which is most important to our subject, and that is: when they arose on earth what was their relation to Time? Were they subject to it in the same way as we, did their relation to time evolve together with their relation to spatial dimensions? I think a short excursion into biology will answer this question, and as the matter of our relation to time is a very vital one I regard it as my duty to be as precise as possible.

Apparently "all cœlenterates are headless and their symmetry is what is termed radial. Moreover, the simplest members of the phylum are sessile like sponges. True their fixation is not permanent, they can crawl about a little if they choose and change their pitch, but they never hunt or browse. They feed by spreading a net of tentacles to catch whatever chances by. Thus motionless the early cœlenterates must have fed."[2] I do not think there can be any doubt if we consider the significance of these words, that these creatures were one-dimensional, and that any experience they in their unchanging condition can have had, came to them out of time, in the "single-celled forms or early experimenting free swimming colonies" which were caught up in their tentacles, and on which they fed; their sole consciousness (if feeding can be termed so) was of waiting in Time for the next time when such colonies came their way, a quiescent Time if one may call it so. "The next great steps to be taken were first to unstick the animal from the bottom, to emancipate it from its sedentary habits, to send it freely adventuring through the sea; and, secondly, to confer upon it a bilateral symmetry like our own, with back and belly, right and left, for without such symmetry vigorous locomotion is impossible. . . . (And with it the animal must become two-dimensional. Au.) Probably the first two-sided animals were not unlike the flatworms to-day? They took to crawling on one side only of the body and with one end always in front. . . . The hind end became a passive acquiescent follower. Thus as a concentration of sense-organs and nervous tissues in front, there began the evolution of head and brain."[3] Thus arriving at the two-dimensional animal which, by moving forward, is capable not only of

[1] *Sc. of L.*, Bk. V, Chap. 2, par. 4 ff. [2] Ibid., p. 404.
[3] Ibid., p. 405.

voluntary activities both in height and breadth, but also of a recognition, however dim, of time in the sense of approaching things as it moves towards them in time, and of their passing away again as it leaves them behind. It is thus clear to me that with each new dimension, the new condition is heralded by a progress in time as well as space dimensions, for whereas the cœlenterates could only know a kind of molecular time, where events occurred with black spaces in between, the flat worm knows a consecutive time in which its methods of locomotion also play their part.

A further step in the evolution of living creatures is the development of blood and the tubes for it to flow in—" transport system and marketing facilities all in one. Equipped with a blood system animals can grow bulky in three dimensions and yet have their organs compact and solid. . . . From some worm-creature such as this, with central nervous system, blood-tubes and tubular gut open both before and behind, and running a large part of its course through a cœlom-jacket, all the higher groups of animals must have branched out."[1] It is probable that this is true of vertebrates as well as of arthropods, for these cœlemate creatures gave rise to many different phyla whose descent can be traced, and whilst one main line gave the world such diverse creatures as earth-worms, which propagate by transverse fusion, from which the arthropod phylum is descended, another main line which branched very early gave rise to two very different products, the Echinoderms and the Vertebrates. The former do not concern us here, but the primitive chordates are of deepest interest for the further evolution of living creatures, for they " became extremely muscular, and developed a long elastic skeleton-rod, the noto-chord, down their backs on which the muscles could pull, and they grew a projection of the body behind the anus—a tail—which helped them in swimming. It would be hard to exaggerate the evolutionary importance of this early vertebrate invention of swimming by side-to-side undulation of the whole body like a fish or a lamprey or a lancelet. It is by far the swiftest and strongest method of progression that aquatic life has discovered. Its effects are written throughout the vertebrate frame, even in those vertebrates like ourselves, which left the sea ages ago."[2] That tail which seems at first glance of such small importance, " speedily became nothing else but muscle together with its necessary supports and protections, and the supply of blood-pipes and

[1] *Sc. of L.*, p. 406. [2] Ibid., p. 409.

nerve cables needed to nourish it and regulate its actions. . . . This it was that made the vertebrates the athletes of the animal world ; the speed and power thus conferred upon them called for, promoted and encouraged the evolution of better brains and sense-organs, better co-ordination . . . our stock swam to supremacy before the fingered limb had been invented. In a very real sense it was our tails that made us what we are."[1]

And here again it was a movement in Time that was the decisive agent, for swifter movement meant more and better food, and the call for this developed ever more perfect modes of swimming, which evolved the muscular tail, and so on, to the great realm of vertebrates and Man, and it is via this same motion in time that we shall certainly eventually discover the mechanism that must lead to a further dimension, and by which we may even now detect the first symptoms of it ! Let us therefore examine what we know of our present relation to it a little more closely.

Until a few years ago, the whole spatial world was regarded by us as an accumulation of solid, dense material, floating in an imponderable system of points of time. All spatial objects formed immovable anchors to which we chained the minutes which composed the passage of time. But the present position of physical science makes our three-dimensional concept of the world look like nothing so much as an elaborate worm point of view. Lindemann, one of the most advanced men of science, gives a graphic description of the universe from the point of view of physical science : " Each particle in such a universe can be depicted as a world line in the space-time manifold. Its position at a given moment is fixed by its intersection with the three-dimensional plane at right-angles to the time axis, its velocity and consequently its momentum, by the tangent drawn to the world line at that point."[2] But as between the events of its intersection, the particle is admittedly not to be found, the idea of world lines has had to be replaced by the conception of world tubes, or so-called " probability cones," within which the particle intersects the three-dimensional plane at indeterminate points, which points of contact build up our notion of time. If, therefore, the time we have known of hitherto has now become but a part of the block : space-time, within which is formed our conception of the material world, clearly, then, we must look to find the next dimensional world in a new aspect of so-called " time." Once men recognise that

[1] Ibid., p. 409.
[2] *Physical Significance of the Quantum Theory*, p. 44.

time no more evolves but is only the determinant of space, making up the above cone, then must we, who possess the power to recognise this particular aspect of time as static, look for the symptoms of the next dimension in something that does move forward and in every direction, and I do not think that there can be any doubt that it is in Mind alone that this may be found.

So far, all the above descriptions of space-time are only scientific theories, I admit, and our common estimate of the world condition has not been materially altered thereby. But great minds are always forerunners that perceive a Truth, which becomes common knowledge to subsequent generations, sometimes even many centuries later : Pythagoras said the world was round some two thousand years before Galileo's time—what the wise know about the universe to-day must eventually become the property of all mankind. And we are not so very far from the truth even to-day, for we can quite well visualise a condition when all that we know now as the space-time setting of our lives, or even regard scientifically as electro-magnetic waves, ether waves, photons of energy, etc., will be recognised to be the static aspect of the world as seen by this present four-dimensional human animal, and the mind alone will flow in a space-timeless condition, of which there are at present but few indications.

If we would learn something about that stage which must follow the present space-time stage, the first step must obviously be to place Time in its proper relation to our lives as well as to our minds. So long as we continue to regard it as the flowing medium that measures the events of the universe, we cannot hope to understand life in any other form than that in which we know it at present. If we are ever to escape the dominion of Time, we must attempt to understand something of what it is *in itself*, and, as far as I know, we are indebted to J. W. Dunne for the only real light that has been thrown on the subject. In his book, *An Experiment with Time*, he puts forward the most interesting and convincing hypothesis yet propounded as to the nature of time *per se*, and I consider that this work marks the dawn of a new science, the science of time. I feel it is almost unfair to extract fragments from a work where every conclusion is built up on close reasoning—but without the confirmation of its conclusions I fear that much of what I shall have to say would appear far-fetched and even unjustifiable. What the ancient adepts told of their experiences in a dimensional condition outside the common, or what some few modern men

have experienced of uncommon phenomena in their daily lives, assumes a new significance in the light of this new science.

Admitting that every change of dimension is conditioned by Time, Dunne says: "If Time passes on or grows, or accumulates or expends itself, or does anything whatsoever except stand rigid and changeless before a Time-fixed observer, there must be another Time which times that activity of, or along, the first Time, and another Time which times that second Time, and so on in an apparent series to infinity. . . ."[1] "Every Time travelling field of presentation is contained within a field one dimension larger, travelling in another dimension of Time, the larger field covering events which are 'past' and 'future' as well as 'present' to the smaller field. . . . The serialism of the fields of presentation involves the existence of a serial observer. In this respect every time-travelling field is the field apparent to a similarly travelling and similarly dimensioned conscious observer. Observation by any such observer is observation by all the conscious observers pertaining to the dimensionally larger fields, and is ultimately observation by a conscious observer at infinity."[2] For instance, "suppose that we were to draw a plane diagram of the 'family tree' of the entire human race, employing one dimension of the paper as Space and the other as Time I. The result would be a network with numerous points of intersection, representing marriages, and numerous branchings-off representing births. And you would find that you could trace in that network an unbroken connection between any two points that you chose to select. . . . If we were to assume that this diagram exhibited only the *cerebra* of the individuals concerned, it would be the first, Stage I, temporal extension in a Time analysis in which we were dealing with all human observers together, instead of with one alone. It would represent, therefore, in the second stage, the connected field II's of all observers concerned.—Along the lines of this universal field II network there would travel the *individual* field I's."[3]

The conclusion we may draw from all this is that the field of every individual on earth is but that two-dimensional, Time I field, one of a series, but it stands to reason that were we able to free ourselves from the limited consciousness of our own field I cerebrum, we should enter the more extended field of all observers together—an all-one consciousness. "Time I extension has a beginning and an end . . . but the fields which travel over the extensions in the second and 'higher' dimen-

[1] *Exp. with Time*, p. 124. [2] Ibid., pp. 151–3. [3] Ibid., p. 200.

sions of Time *do not in any term move from or towards those two boundaries; they travel straight up between them.*"[1]

It is perhaps the most difficult thing we can be called upon to do, to imagine ourselves in those "higher" dimensions of time, but I do not consider it impossible! Let us, for instance, imagine ourselves receding from the earth at a speed quicker than that of light, we should then see the train of events in inverse order, for, in the course of our journey, we should catch up in succession the luminous waves that left the earth before us, we should, in short, see "terrestial events happening as if we were *ascending* the stream of time." Clearly we should, in such a case, be living under a different order of Time to that in which we live at present; by receding or advancing we could at will see events going, what we call backwards or forwards, and we could always, if we wished to, reach a place where we could recover any event once more, hence there would be in our eyes no beginning and no end. There would only remain a series of apparently static Time events (as there are static Space events in this dimension) which we should be able to pick up as we wish. (Of course, all this can only be conceived as happening on a mental plane, since the physical state would have ceased together with the space conditions to which it belongs.) Under such circumstances we should be freed from the limitations of our world Time: past, present and future would have ceased to exist, there would only be *change or intervals*.

But even if we do not go so far as to imagine ourselves travelling faster than light, we need only move forward with the exact speed of light to see that the one event within which we were travelling would never end, and Space would then cease as well as Time, because there would be no more points of comparison, all the light waves of our universe travelling with us, nothing would ever appear different to what it was when we started. We should then know no end of time nor anything else. Dunne's reasoning certainly indicates that (failing the arbitrary interference of some deity) the substratum, "which is the extension in many dimensions of Time, of the primary extension in Time I . . . persists to infinity in all Time dimensions except the first. . . . So observer I (ourselves in our present dimensions? Au.) seems to be the only observer that dies."[2] And directly death ceases to be, so also does its companion, birth, or rather, vice versa; for an observer in that substratum, Time as a flowing medium would have completely ceased,

[1] *Exp. with Time*, p. 162. [2] Ibid., p. 162.

and he would be a wanderer between Time points as he now is between space points.

This may seem an impossible conception, yet science is undoubtedly moving in that direction; if even of the things that are at the basis of the physical world, we cannot state with certainty that they are moving, since the principle of indeterminacy has been built upon the fact that we see an electron in unpropheciable flashes, and there can be no absolute certainty that what was here is *the same* as is now there, it is not possible to assert that any one thing actually moves *across Time* any more. And if the very basic units of the universe cannot be proved to take Time, wherein could we expect to trace its manifestations with any amount of certainty? I am bound to admit, however, that the abolition of Time is for the moment merely a mental conception, and has nothing to do with the world we live in, we shall have to evolve into very different beings to what we are at present before these ideas can be experienced!

In considering mankind in relation to these questions, it is impossible, however, to make an assertion which applies to all men alike, there is undoubtedly a very great difference between the world as conceived by the man who is content to accept it as his senses know it to be, and the world as it appeared to the minds of some few, and probably appears to the dawning perceptions of those who already divine something of the next stage on the inflowing tide. As ourselves, living in this space-time universe, everything we know is only perceptible to us by the rate of its motion through space *and time*; in our earthly conditions, even this very table at which I sit would have no consistency but for the high speed of its molecules, as we learnt above; but, if we project our minds beyond these sensual perceptions, beyond these four-dimensional conditions, we discover, at the very heart of our so-called "materialistic" religion of science, ideas that closely resemble the older metaphysical conceptions of a future state. If all realistic[1] thought agrees in forecasting a condition outside space-time, even though at present it be only conjectural, the time will surely come when it will become Reality. Once we perceive our illusions, it is only a matter of time before they are abandoned. Could the cœlenterate tell the flatworm its idea of the world, the flatworm would laugh and say, "That is your illusion!" So do we when we consider the two-dimensional conception which such a worm may have, and so will the being

[1] In the philosophical sense of the term.

that may arise on the crest of the next wave, when he looks down from his tranquil heights and contemplates our struggles in the meshes of our space-time nets. That we already know as a scientific fact that this ultra space-time condition exists, in a reality which so far eludes our normal apprehension of things, is the first ray that presages the dawn.

One more word regarding the present scientific conception of space as such. Our present relation to space seems as insecure as is our relation to Time. Science seems to have destroyed the bedrock of all our pet illusions: we know the world as our eyes see it to-day, that is all we can say with certainty—to-morrow our minds may contemplate a different world altogether. This instability of everything that mankind has always considered most immutable is perhaps at the bottom of all the unrest in the world to-day. We ourselves have become relative beings, even in our own eyes, since Einstein has proved that the stability of the very foundation of our lives, namely, Space, is no more unassailable. In fact, not only does the theory of relativity show that we are existing in something fluid like an ocean with rising and falling waves which yet never progress, but that even the terms of this conception can only be accepted in relation to the conditions of our earth. "There is a frame of space *relative* to a terrestrial observer, another frame *relative* to the nebular observers, others *relative* to other stars. Frames of space are relative. Distances, lengths, volumes—all quantities of space-reckoning which belong to the frames—are likewise relative."[1] This is no mere theory, but a fact that has been proved by the Fitz-Gerald-Lorentz contraction, which has altered the whole situation as regards our relation to space. Until FitzGerald's experiments, space had always safely been described by any given measurement by centimetres, acres or pints, and the distance from one solid body to another was our framework, all of which gave us a sense of knowing everything about space and its contents. As a result of the above-mentioned experiments, however, the measuring rod, which was the infallible measure of space, has been proved to have only a relative value: "if we had been concerned to deal with lengths of the order 10^{-9} or 10^{-8} cm. and therefore compelled to use measuring-rods containing but a few particles, it is improbable that the concept of distance and its derived concept—space would ever have arisen,"[2] for the rod would have been discovered to oscillate in length as

[1] *N.P.W.*, p. 21.
[2] F. A. Lindemann: *Physical Significance of the Quantum Theory*, p. 81.

much as that which it was intended to measure. Owing to the fact that this amount is so small in comparison to the objects we usually measure however, we are unable to perceive it under ordinary circumstances, and the measuring-rod is still sufficient evidence for the existence, shape and size of the spatial realm. But, even though we must still continue to measure the world with our old friend the measuring-rod, yet to our mind's eye it now shares the fate of all other material objects, is, namely, in continuous vibration, which robs it of its value as the final and absolute measure of space. As a result of all this, a very strange fact comes to light: just as science had disproved the movement of time as such, in the same breath it makes space become unfixed, and they apparently join together as something neither moving nor motionless, and in the end we can only picture ourselves as rocking in some form of fluid cradle which moves without progressing! This is the most amazing reaction from Victorian materialism that could possibly be conceived: only fifty years ago, science had made the world ultra-material by its assertion that all things in space were composed of atoms "like tiny billiard balls!" To-day we not only realise that all atoms are oscillating, but even admit that their intrinsic properties are unknown since all attempts to define their exact position are fruitless, and even that which links them together is unknowable. Eddington sums up these facts in one masterly sentence: "The suggestion is that an association of exact position with exact momentum can never be discovered *because there is no such thing in nature.*"[1] What, then, becomes of space and time or even space-time?

There does remain one thing, however, and that is the mind that conceives all these things, the mind that makes the world appear sheer materialism at one moment, and turns it into waves the next; the mere fact that it continues to analyse and seek for solutions is proof that It knows that absolute Truth has never yet been reached. A few years ago it would have been regarded as insanity or religious mania to suggest that there might exist a world entirely unlike the physical world we have always known—not beyond the grave, but here within reach of every man, a world unlimited by space-time, or matter, of which our subconscious minds, equally unlimited, might obtain cognisance. By opening our eyes to the fact that we possess within us a power not controlled by the physical conditions which rule ordinary life, the new science of psycho-analysis has made it evident that neither are our senses nor

[1] *N.P.W.*, p. 225.

space-time universal frameworks, and that there exist conditions outside the domain of either. But if this be so, then might that power which is free be instrumental in revealing to us the world conditions peculiar to itself, in fact it is highly probable that the sources of the inspiration that led scientists to the overthrow of a material, limited universe of mass, moving through substantial ether, are to be found in this very insubstantial, free, substratum of the mind. What, but something itself free from space-time, would dare assert that: "Time and space are mere phantoms,"[1] and "all that exists in reality is a sort of union of these entities"?[2] But that being so, we should now realise that, could we but enter the state of that which is this "union," we should enter a freedom unknown hitherto on earth.

II

Before we can finally dismiss the scientific aspect of the space-time problem, and turn to its more human aspect, I feel there is one great question still left unanswered regarding this matter, and that is the scientific reckoning of Time by entropy rule. So long as we are forced to mark the stages of universal evolution by entropy-change, there can neither be any definite constructional process, nor any in-gathering towards a final Oneness, for it is one of the most fundamental tenets of present-day science that: "nothing in the statistics of an assemblage can distinguish a direction of time when entropy fails to distinguish one";[3] this fact Eddington considers of such supreme importance that he puts these words in italics! Entropy change is not only a scientific hypothesis which explains certain phenomena, but it is a fact proved beyond question by all subjective observation: ordinarily speaking we cannot conceive of history rolling backwards, of all elements re-becoming hydrogen, of planets dropping back into the sun and all suns re-gathering into one mass of nebular substance! But as against the overwhelming evidence for the existence of passing time as counted by the dissociation of the universe, there appears to be one element which refuses to disintegrate and which accomplishes the seemingly impossible task of climbing the ladder which matter descends, and that is the mind element. Let us, for instance, take the illustration which is most commonly used in this relation, and follow it to its logical conclusion. "If you take a pack of cards, as it comes from the maker, and shuffle it for a few minutes, all

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trace of the original systematic order disappears. The order will never come back, however long you shuffle."[1] As a matter of fact, it is obvious that with regard to a pack of cards, which only contains a limited number of possibilities, there is quite a good chance that the original order may eventually reappear; but even so this occurrence is so rare among card-players, that when a case does occur it is published in the papers! If such be the conditions relating to a pack of merely fifty-two cards, we can easily conceive that the chances of the vast material in the universe ever returning into its "original systematic order" may be regarded as nil—that is if it continue to be governed by chance. But there is one small factor that puts a different complexion to the matter, namely, the mind, which can undoubtedly sort the cards into their original order at wish. Is it not possible that this simile holds good with regard to universal conditions and that entropy does not drag the mind down with it? I think this idea is daily gaining ground among men of science; they have to admit, even in relation to biology, that it is a naughty child which refuses to march in line with the rest of their well-regulated entropy "caterpillar"; but what is even more disconcerting is that the psyche refuses to be entrapped even by its own science of psychology and insists on going its own way, free of all definitions. When, therefore, out of the unlimited wisdom of this free mind comes the proclamation that "Time does not flow any more than space flows—it is we that are flowing wanderers in a four-dimensional universe," we must conclude that if we also ceased to flow, we should inevitably escape from the last fortress of time, even entropy change.

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which overstep the boundaries of nationalities: the Buddha, Jesus and Mahommed have altered the course of mankind and formed brotherhoods that have spread over entire continents, regardless of race or colour.

These same facts apply also to individuals: whereas 3000 years ago the only men who possessed any knowledge were the few priests behind temple walls, to-day whole groups of men co-operate in trying to penetrate the secrets of Nature and solve the riddles of the universe, whilst millions hang on their words, hungrily demanding knowledge. But it is not knowledge which is the supreme factor in this matter: when Jesus placed as the second greatest of all commandments that men love their neighbours as themselves, He evidently knew that were this condition to obtain, mankind would have surmounted the process of universal disintegration and be One. To *feel* one with all mankind, this is the supreme goal which mankind sooner or later has got to attain: "He who would enter that pure nature free from all separateness, he must have detached himself from all personality, so that he concedes as much good to the man who lives beyond the sea, and on whom he has never set eyes, as to him who lives at his side and is his trusted friend. So long as thou concedest more good to thine own person than to that man whom thou hast never seen, so art thou entirely astray, and never yet hast thou, even for a single instant, espied that fundamental simpleness beneath."[1] Just as there are various parts of a body but underlying all is the simple conception: man, so should it be with mankind. Many men of many species, but fundamentally one: mankind—to which one and all contribute their share, and until we not only recognise but feel that "fundamental simpleness," we can never hope to raise the next wave. The force of entropy must be overcome at any price, that is the first step, and if we would apply ourselves to this, we must begin by steeping ourselves in a sense of all-unity, whatever religion we profess. (This idea is a universal force, and should be over and above and encompassing, religion, for it is what the universe is calling for.) If we would bring back order out of chaos, we can only do so by applying ourselves to making the universal cards, in the shape of man, re-become unshuffled.

The World War was the greatest set back that man's struggle against entropy has ever known, but even so we need not despair, for this was but the reaction of the physical nature of

[1] Ekkehard, Vol. I, p. 98.

man against the forces of the mind, that are threatening to overpower it—and in spite of this disaster, we need only look around us to see that mankind is still aspiring at unity in spite of all obstacles and hindrances. Is not the League of Nations one of the greatest steps hitherto attempted in that direction? And not only that but mental community is also striding forward: India and Europe are meeting on the common ground of psychology, and making an effort towards a greater understanding of Man, based on the wisdom of both; America and Europe have formed a great brotherhood in physical science, each contributing their share to an understanding of the universe in which we live. And even though one nation casts out its greatest prophets of the new religion of science—these immediately find hundreds of arms open to receive them. The barrier of nationality does not exist among the members of this brotherhood any more than it did among those of the religious brotherhoods of the past. Clearly, where the spirit—or mind—rules, all those subject to it must become a unity. The road to Truth is, and always has been, something which places men outside the disintegrating influences of the physical world, and it is slowly but surely building up brotherhoods whose unity nothing shall dissolve. In the kingdom of the mind the scattered is being garnered, the random directed, in inverse ratio to the scattering universe ruled by entropy; perhaps when matter will have burst, like the last rocket in a play of fireworks, into a final shower of sparks, and there is no more physical unity left, the universe will be transformed into the all-Oneness of mind unity. Some day in the far future there will certainly only be such mind unities left; national differences will very soon disappear and the only distinctions among races will be purely academic ones. When all finally combine to proclaim the sameness of ideal, then shall the whole of mankind be one people pursuing one goal of ultra-physical nature—this stage will sink into abeyance, and the next will emerge, more closely and perfectly a unity than anything we can conceive of at present.

The difficulty of conjecturing what this great future unity will be like is at present insurmountable, for science has shown that from the very outset every new unity that was formed produced new qualities of an entirely different nature to any of its individual components. Beginning at the foundations of the universe, at the hydrogen atom, we find that its two elements produce different results in every successive combination: whether we think of them in helium, or radium, or

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The difficulty of conjecturing what this great future unity will be like is at present insurmountable, for science has shown that from the very outset every new unity that was formed produced new qualities of an entirely different nature to any of its individual components. Beginning at the foundations of the universe, at the hydrogen atom, we find that its two elements produce different results in every successive combination: whether we think of them in helium, or radium, or

in the human body—although fundamentally all are the same. But: "An electron in a living body is different from an electron outside it by reason of the plan of the body . . . now we are told that out of fellowship all protons and all electrons are exactly alike. So be it *out of fellowship*. But we say that *in fellowship*, that is, as members (of helium, for instance. Au.), all four electrons are in some measure emergently different in accordance with the part they severally play."[1] But why oxygen, hydrogen and carbon dioxide in fellowship should have evolved into life, for instance, is an insoluble mystery to this day. Be it in astronomy, physiology, biology, or even history, we are everywhere faced with the same fact, there is nowhere any exception to the rule that several elements in combination produce something new and unprophesiable. And when we come to consider mankind, are things any different? To quote Mr. Haldane, who is as great an authority as we can find on this subject: "In connection with the biological interpretation, I pointed out that not only does organic determination extend out into the environment of an organism, but that when apparently separate centres of life or organisms are in near contact with one another, so that their environments coincide, these lives may manifest in themselves a wider life than that which would appear in connection with each component organism if it were separate from the rest. In the case of conscious personality we see the same thing on the psychological plane and exemplified in a very striking manner. The interests of associated persons become a common interest. This does not mean that the common interest is merely the algebraical sum of the more or less conflicting interests of the associated persons, but that there is an extended organised interest and a corresponding perception and voluntary activity in which this extended interest is manifested. . . . Although individual interest is still distinguishable, it may be completely overborne by the common interest. Individual perception and individual conscious activity are then merged in the wider perception and conscious activity . . . to conscious interest there is no limitation of time or space . . . we see that in conscious behaviour we are not dealing with something which, like the 'bodies' of the Newtonian world, can be regarded as simply existing here and now. The here and now of conscious behaviour reach out over all other heres and nows."[2]

[1] *J.P.S.*, January, 1930, Lloyd Morgan.
[2] J. S. Haldane: *The Sciences and Philosophy*, p. 108.

We cannot deny that such conscious interests manifesting in groups have given the world the possessions that have built up civilisation; but where they spring from, and where they will lead us, remains as insoluble a mystery as ever. We ask ourselves what it was that made the Greeks the fathers of Art and Philosophy—the Romans of Law—the Semitic and Indian people of Religion, and our modern European civilisation of Science, but there is no reply. We only know that out of the "organised interests" of each of these nations has sprung something which has resulted in a vast stride in the mind development of the human race. More especially is this true in the case of the great religious movements, which have built up amidst the vast concourse of their adherents, a common mind, less easily definable than the contribution of nations, but clearly recognisable in the ideals pursued by them. But the fact that stands out above all others is that the final achievement of all these groups of men, either national or religious, has always been a non-physical achievement and has resulted in a progress of the human race, in the direction of more perfect mental or spiritual development—what is commonly called civilisation. And this is true even of science, which is apparently the religion of materialism, but is it not also a religion of progress? Einstein's theories of relativity and gravitation, the new theories of wave mechanics, of cosmology, of psychology, etc., are enthralling to mankind, not because they offer a new explanation of the nature of man, matter or stars, but because they open new avenues to the age-old search for Truth, which is something not the property of one man or nation, but belonging to the realm of universal values. And in parenthesis be it said, on its way in search of Truth, science is increasingly opening its doors to the religious ideas of God—the One, primal source of all things.

Everything that has non-material value like religion or philosophy, or non-material foundations like laws and sciences, necessarily carries mankind towards an ever more embracing *mental* synthesis; the more we are induced to regard life merely as the cup whose contents are non-physical, the nearer do we approach to the day when we shall have completely absorbed the contents and may throw the cup away. Mental syntheses necessarily also overleap the barriers of physical limitation between one individual and another; the more men advance in the mind realm, the more closely will they unite, because Truth is One, and the nearer men approach to it, the more surely must all divisions cease.

The nature of that condition is certainly beyond our ken, although its occurrence admits of nice mathematical calculation: (*a*) If four combine to make one, as in the first combination of hydrogen into helium; and (*b*) two of these (or eight of the first) again make one; (*c*) further, two of these last (or four of (*b*) and sixteen of (*a*)) again make one, this continually extending linking must eventually carry us with mathematical precision to a Supreme One, which embraces every unit under the sun. And there we have reached the goal of all the dreams of mankind; the all-containing, all-pervasive, nowhere non-existent ONE.

But in order that men may some day reach this goal, the mind must persist in reascending the entropy gradient, until it can collect within itself all the physical bodies in the universe. We must make a beginning by obtaining complete mental control over the mechanism of our bodies; once we become capable of doing this, we can employ our power for the sole purpose of enlarging and perfecting the mind, the new element that has been born into the universe and of which we alone among all living beings are possessed—a difficult enough task in view of the little we actually know of the real nature of the mind! There is one point that seems to hold out a hope that our endeavour will not be fruitless, however, and that is, that the physical organism was seen above to be so arranged, that it feeds the mental life, therefore the body is no actual hindrance, although later the mind will have to free itself from all dependence on mechanical agencies, and control its own growth. Finally the last thin cloud of matter will disperse, and lying serenely underneath will be found the firmament of Truth.

Many will consider this conclusion rather unfounded, but although the mind be of an entirely different nature to any physical element we as yet know of—perhaps some new form of energy?—yet, by its periodic cycles moving whole nations as well as individuals in larger or smaller waves of rising or setting power, it still fits into the framework of the universal organism, and therefore we may assume that it, like stars and nebulæ, has its definite stages. Every cycle as we know must be built up on the ashes of the last, nothing may appear out of its time, the building must be constructed floor above floor: "In climbing no man may overleap steps, for this the steps will never forgive,"[1] Therefore we find that every innovator of any kind arises out of the heart of a nation prepared for that

[1] Nietzsche: *Thus Spake Zarathustra:* The Tree on the Hill.

specific knowledge: Buddha rose out of Brahman India, Jesus out of monotheistic Palestine; philosophic Greece produced Plato, mystic Italy, Dante; the nations of the nineteenth century all struggling for power produced Nietzsche, our scientific era produced Einstein; none of these men could have given the race their treasures had they not been children of their own time and place. It is apparently a matter of the mind producing that which is the fruit of each cycle as it comes—January blossom gets killed by the frosts!—but spring blossoms must by the rules of their own constitution eventually ripen into fruit.

There is one phenomenon in the process of mind which is perhaps difficult to understand; each civilisation as it arises seems to contradict many of the dogmas of the last. Do none then speak the truth? All do on the contrary, for although there is but one Truth, it has many facets which alter according to the vision of those who seek it. Anyone who has climbed mountains knows that the view alters at every step of the ascent, although the peak itself remains ever the same. To-day men are inclined to lend ear to what is told them by Einstein, Eddington, or Planck, and are sceptical as regards what was said by those who sought Truth in itself, from out of the depths of their own minds. But there is no absolute reason why men who devote their lives to an explanation of the physical universe by mathematical means should be more infallible than those who seek Truth from within, both are equally justified. And ultimately they all draw their truths from the same sources, if we are to believe Jung. Our real reason for preferring our modern prophets is that our present-day lives, our industries, our commerce, are, equally with science, all constructed on a basis of mathematics, which becomes the *Deus ex machina* of our existence—hence our religion! But even this science of mathematics when regarded *in itself* is as unmaterial as any religious belief, woven as it is out of pure reason, and of this it can be said as truly as of any religion that its whole aim is the construction of unities out of a multiplicity of factors! Everything attained by any great scientist to-day is a victory of the mind over the entropy rule—only so far no one has paid any attention to the significance of this fact—we have still much to learn in these matters.

CHAPTER VII

HERE, THERE AND EVERYWHERE

I HAVE so far treated the question of man's relation to space-time from its scientific and historical aspects, but if space-time is proved to be no boundary in any absolute sense, we should surely be made aware of this by some experience in our daily lives, or at least the lives of the most evolved among men should show some signs of exceeding those limitations. If we were unable to trace any form of life freed from space-time, any idea of freedom therefrom would look suspiciously like a mere scientific theory. But if space-time could be proved to be a mere form of measurement related to our sense impressions, what would become of our consciousness of days and hours, places and things, which is after all at the basis of our existence as such ? If such consciousness be something that can be overcome in real life as well as in scientific experiments and it could be proved that this had actually been accomplished at any time, those who did so being obviously in a condition superior to that of their fellow-men, this would justify us in attempting to realise the same for ourselves and others.

What is there in common human experience that could mitigate against the overwhelming evidence for the existence of space-time ? Historically speaking, there is the experience of seers past and present, who have registered events occurring at a distance, experiencing a tragedy, for instance, of which the conscious mind knew nothing. Then there is the experience of prophetic dreams, the occurrence of which is to-day undeniable. Whatever faculty it be that enables people to have such experiences, it unquestionably proves that under certain circumstances, "absolute elsewhere" and "absolute future" can be abolished. The highest Yogis or Lamas of India or Thibet are said to be capable of placing themselves at will in events past or future, near or far, but in Europe we are inclined to treat such assertions with a good deal of incredulity. If, however, we were to discover examples of the

same powers at our very doors, among people we should consider quite normal, we might be inclined to take a different view of the matter.

Considering that the ultra-space-time condition is only one stage in the general scheme of the universe I am attempting to portray, I cannot give it the attention I might wish; but I cannot leave this matter without making it clear that such a condition is not a mere projection of the scientific mind, but a very real thing, and it is impossible to do this without adducing some actual experiences of living persons, as well as historical ones to support my contention. From the former I shall choose three examples, for the truth of which I can vouch, which may give my readers some idea of conditions that may be universal at some future time.

The first is the extraordinary experience of Professor V., the famous Geneva neurologist, who told the story himself to a friend of mine, G. S., who was his friend as well as patient. Professor V. was walking one day in a street of Geneva, when he suddenly found himself in a train travelling from Berlin to Frankfurt as he presently discovered. He opened conversation with a stranger sitting opposite, and after a while they entered into an interesting discussion on philosophy which lasted the rest of the journey. At Frankfurt they both got off the train, and having parted from his new friend, Professor V. suddenly found himself back in the same street of Geneva, having advanced but a few steps from where he last remembered himself to be. Professor V., himself a mental specialist, took a grave view of a condition in which such a mental lapse, or hallucination (as he thought it), was possible, so he gave up practice, and prescribed himself two years' complete rest. If the matter had ended there, it would not be worth recording, but what makes it a most extraordinary phenomenon is that some time after his return to work, the man from the train walked into the Professor's consulting room! There was instantaneous mutual recognition and the man reminded the Professor of their journey, and of the conversation they had had together! To me there seems no other explanation of such a case but that of a condition freed from the boundaries of space-time.

The next case of the kind I heard from the lips of Dr. E. of Munich himself. He was lecturing at Munich and returned by train to his home in the country on a certain winter's night, the train duly arriving at the station at its appointed time, namely, ten o'clock. The station was an hour's walk from his house, and as he wearily set out to walk through night and

snow, he looked at his watch, which made it five past ten. Suddenly he was at home, his wife asking in surprise how he had managed to get back so soon; and, looking at the clock, he saw it was still only ten-past ten! He naturally doubted his eyes and the timepiece; and being of a methodical temperament, not given to spiritualism or hysteria, he set about investigating the phenomenon, but seek as he might, he could not alter the fact nor explain it.

These two experiences point to a condition which I should like to call: *horizontal time*, that is: practically simultaneous time in two places experienced by one individual, though in the case of Professor V. there is a complete temporal mix up, for he not alone lived in two places at once, but in one place he lived several hours, whilst in the other only a few minutes went by. If such annihilation of space as well as disjointing of time can occur at all, it follows that it must be possible, at least, to acquire the science of making it occur at will, although to us, who do not possess this science, incidents such as the above seem hardly credible! But to any Indian there would be nothing strange in these stories;—my father was present at Viceregal Lodge when, as an experiment, a telegram was sent to Bombay, of which the contents were shown to an Indian fakir—this man brought the correct reply three hours before it arrived by wire. This is probably thought transference acting by the same means as was the body transference in the other two cases, all occur on a plane of which we at present know nothing beyond accidental phenomena.

The next question is: Are there examples in ordinary experience which could lead us to believe that the mind can project itself into a perpendicular gradient as well as stretch over a horizontal one? Can it at will descend into the future as well as ascend into the past? I do not think that anyone will deny to-day that there are cases of people who under certain circumstances can project their minds into the future. I will not speak of the prophets and soothsayers of ancient times who were the recognised inspirers of kings, but most of us have, at some time or other, met true clairvoyants—even when we have not ourselves at times foretold some coming event—and to-day there is no denying the fact that to certain people at certain times the future is as clear as the past, their minds are not limited to the here-now point. To take an example which I can personally vouch for the truth of: A friend of mine was sitting by the bedside of his sick father, an ordinary country gentleman, not given to clairvoyance or any other spiritualistic

activities—I doubt if he had ever even heard of such things. Suddenly the sick man roused himself, and told his son of a vision he had had of a procession in which he had taken part. He gave the minutest details of all that occurred on the way, down to the builders who came out of a house they were constructing in a certain street and laughed, and to the dog that ran alongside. A week later the father died, and at his own funeral everything occurred exactly as he had himself foretold. I am sure Professor Jung could give many examples of similar occurrences in relation to dreams, but to my mind, what makes this particular case an extraordinary one is that here the mind clearly outstripped the conditions of life, to which it was mechanically bound, and was not limited by the death of the body.

As for proofs of the present existence of the past, I will only remind my readers of the now famous experience of the two English ladies in the gardens of Versailles, who were witnesses of a scene that had occurred over a hundred years before, in which the central protagonist was Marie Antoinette. It was afterwards proved that this scene had never been reported in any history book, although it was completely verifiable, even to the clothes worn by the Queen ! This is by no means an uncommon experience, however, although I cannot pretend that we are any nearer to an explanation of it than were our ancestors. I only know of one adequate explanation of the present appearance of past occurrences, namely, that we are able, in certain circumstances, to climb through the various Time "fields" suggested by Dunne !

All these facts are undoubtedly connected with one of the greatest enigmas that confront mankind : is the future really as much in existence as is the past ? As much so, for instance, as is the last chapter of a book, whilst I am reading the first, and vice versa. In view of the fact that science to-day admits that our ordinary time measure is an illusion, this seems to me a perfectly reasonable proposition. And if this be so, then it is easy to carry the suggestion one step further, and assume that the mind is capable of entering a condition that contains both the "absolute elsewhere" and the "absolute future and past," in an all-embracing here-now state as a book contains them, and is even able to experience cause and effect in one flash as happens in dreams. There is no doubt that the greater the mind the wider will be its scope : centuries might be synthesised by one, whilst a few hours are the limit of another's vision.

But, if mind be thus able to outrun time and space, and

make actions and reactions melt into one, it should be able to detach itself from temporal conditions altogether. Undoubtedly it is on its way to this, for modern psychology has proved that some parts of the mind contain no past but an ever present. To quote Dr. William Brown: "Memories are not merely boxed up in cells. There is the central nervous system which is our conscious reaction, activity and cognition. But outside this, is the fringe of nervous filaments which are also in activity, but subconsciously. They have energies which probably act upon and modify us in some way of which we are unaware. Our lives go along carrying with them the sum of our experience, but underneath is a line which carries the actual experience, somewhat like this: and it is possible by hypnosis to delve down into the subconscious of the individual and reach not only the *memory* of a past experience, but the thing in itself with all its attendant emotions, which proves that it is not an image of the past, but a still living thing."[1] Not alone in hypnosis can the past be retrieved in this way, however, for all those who have recovered from drowning, for instance, testify to having re-lived their whole past lives within the space of the few seconds before losing consciousness. "I am yesterday, I know to-day," is an oft-recurrent phrase in Egyptian hieroglyphs, and is, it seems to me, a perfect expression of the human subconscious mind! Those who wrote those words knew something which is true for all time, and what we are learning of the secrets of the mind to-day is clearly only a lesson re-learnt. There can be no doubt that in some part of the mind the past is ever present, and there is a large consensus of opinion which holds the same of the future; apparently it holds the whole of one life experience as a cup may contain wine and water, and eternally has jam to-day, never yesterday or to-morrow. "Then, everything in the intellectual is in actualisation and so all There is Actuality? Why not? If that Nature is rightly said to be 'Sleepless,' and to be Life and the noblest mode of Life... all then is actualisation there, everything is an Actuality, for everything is a Life, and all Place there is the Place of Life, in the true sense the ground and spring of Soul and of the Intellectual Principle."[2]

On the strength of these facts we are forced at last to face the question which is most vital to any further development of the race, for on the answer to it depends our acceptance of this new conception of life: granted that *by chance* some men have

[1] Lecture at the Philosophic Society, November, 1927.
[2] Plotinus, II, 5-3.

at moments entered into an ultra space-time condition, and that others have realised a road to freedom, or enlightenment—as did Jesus or the Buddha—can it be proved that the goal has ever actually been achieved? For all reply, I can only turn to the few great mystics who have, in various lands, at various times, recounted their experiences in conditions freed from space and time. So far, their accounts have never been regarded as having any but an ethical bearing on human development, but I believe the time has now come when it becomes imperative that we should revise our attitude with regard to these men, and I am not alone in this idea, as the last chapters of the *Nature of the Physical World* and the works of C. G. Jung clearly prove!

If, however, we would learn something of real value from those whom we call "saints," we shall have to begin by making an effort to understand the nature of their experiences in a very different spirit from that in which we have approached them hitherto. Some psychotherapeuts have taken up this study, but so far the results of their investigations have only led to diagnoses of "hallucination," "auto-suggestion," "religious mania" and the like; and I am obliged to admit that in a great many cases such diagnoses are amply justified. But besides these, the greatest and most enlightened religious and philosophical geniuses have obviously known conditions of mind that were not pathological at all, and if one carefully analyses their records, it becomes evident that they all relate to an experience which is one and the same through all the centuries, and which is universally regarded by all who have known it, as supreme enlightenment.

For information on such beyond-space-time conditions, I therefore cannot do better than turn to some of those who have undoubtedly experienced them in their own persons, first amongst whom I must place the Buddha, whose every word betrays the knowledge I seek. His goal, Nirvana, is clearly beyond all earthly dimensions, for although he never describes it, it is clear he does not because no terms we use can apply to it, *not because it is non-existent*. Had it been this, why should he have given his life to teaching men how to live in order to attain it? The goal of everything seems to have been for him: "Knowledge as it is said, the undemonstrable, the infinite, the all-illuminating, is that wherein neither water, nor earth, not fire, nor air find place, that wherein greatness and smallness, weakness and force, beauty and ugliness, wherein name and form cease all in all."[1] That was Nirvana, supreme

[1] Kavatta Sutta: Digha Nikaya.

Liberation from all world phenomena, and I find allusions to it on every side. One of the Buddha's most famous sermons is entirely concerned with it, and seems to show that he unquestionably knew the condition about which he was speaking—it is certainly the nearest approach to a definition of a state freed from physical life that is to be found anywhere. I therefore venture to give a fairly complete summary of it, for it is all-important that we should make sure that such a condition exists before we can proceed any further.

"Gotama, where is the priest reborn who has attained to this deliverance for his mind?"

"Vaccha, to say that he is reborn would not fit the case."

"Then, Gotama, he is not reborn?"

"Vaccha, to say that he is not reborn would not fit the case."

"Then, Gotama, he is both reborn and not reborn."

"Vaccha, to say that he is both reborn and not reborn would not fit the case."

"Then, Gotama, he is neither reborn nor not reborn."

"Vaccha, to say that he is neither reborn nor not reborn would not fit the case. . . ."

"Gotama, I am at a loss what to think in this matter, and I have become greatly confused. . . ."

"Enough, O Vaccha! Be not at a loss what to think in this matter, and be not greatly confused. Profound, O Vaccha, is this doctrine; recondite, and difficult of comprehension, good, excellent and not to be reached by mere reasoning, subtle, and intelligible only to the wise. . . . What think you, Vaccha. Suppose a fire were to burn in front of you, would you be aware that the fire was burning in front of you?"

"Gotama, if a fire were to burn in front of me, I should be aware that a fire was burning in front of me. . . ."

"But, Vaccha, if the fire in front of you were to become extinct, would you be aware that the fire in front of you had become extinct?"

"Gotama, if the fire, etc. . . . I should be aware that the fire in front of me had become extinct."

"But, Vaccha, if someone were to ask you 'In which direction has the fire gone—east or west or north or south?' what would you say, O Vaccha?"

"The question would not fit the case, O Gotama. For the fire which depended on fuel of grass and wood, when that fuel has all gone, and it can get no other, being thus without nutrition is said to be extinct."

"In exactly the same way, Vaccha, all form by which one

could predicate the existence of the saint, all that form has been abandoned, uprooted, pulled out of the ground like a palmyra-tree, and become non-existent and not liable to spring up again in the future. The saint, O Vaccha, who has been released from what is styled form, is deep, immeasurable, unfathomable, like the mighty ocean. To say he is reborn does not fit the case. To say that he is not reborn would not fit the case. To say that he is both reborn and not reborn would not fit the case. To say that he is neither reborn nor not reborn would not fit the case.

"All sensation. . . . All perception. . . . All potentialities. . . . All predispositions by which one could predicate the existence of the saint, all that sensation, etc., has been abandoned, uprooted, etc. etc. The saint, O Vachagotta, who has been released from what is styled sensation . . . perception . . potentialities . . . consciousness is deep, immeasurable, unfathomable, like the mighty ocean. To say he is reborn . . . not reborn . . . both reborn and not reborn . . . neither reborn nor not reborn would not fit the case."[1]

This sermon has often been used to prove their case by those who maintain that the Buddha taught complete extinction of everything when once Karma, the law of cause and effect, had been overcome, and Nirvana attained; but it seems to me quite clear that what he intended was to express a condition in which no predicates that we know of in this life could apply: to say he is not reborn is as untrue as to say he is reborn, no term fits the case. This is also very clearly brought out in another sermon, which, considering the importance of this matter for the whole construction I have in mind, I cannot refrain from quoting in order to further substantiate my case.

"Inspirations and expirations, O householder, are bodily functions, therefore inspirations and expirations constitute bodily Karma; first occur reasoning and reflection and afterwards articulate utterance, therefore reasoning and reflection constitute vocal Karma (Note I); perception and sensation are mental functions and occur in association with the

[1] Achivacha-gotta Sermon, Majjhima Nikaya Sutta, 72.

Note I.—I think this "vocal Karma" has the same meaning as the Greek "Logos" in a non-divine form, and represents the intellectual principle of which the best summary is Abelard's: "Speech is generated by the intellect and in turn generates Intellect." Jung says of this: "The material with which we think is *language and speech concept*, a thing which has been used from time immemorial as something external, a bridge for thought. . . . As long as we think directly we think for others and speak to others." *Psychology of the Unconscious*, p. 7.

mind, therefore perception and sensation constitute mental Karma."[1]

"And moreover, O priest, I have taught the gradual cessation of Karma. Of one who has entered the first trance the voice has ceased; of one who has entered the second trance reasoning and reflection have ceased; of one who has entered the third trance joy has ceased; of one who has entered the fourth trance the inspirations and expirations have ceased; of one who has entered the realm of the infinity of space, the perception of form has ceased; of one who has entered the realm of the infinity of consciousness the perception of the realm of infinity of space has ceased; of one who has entered the realm of nothingness the perception of the infinity of consciousness has ceased; of one who has entered the realm of neither perception nor yet non-perception, the perception of the realm of nothingness has ceased; of one who has entered the cessation of perception and sensation, perception and sensation have ceased."[2] "The Perfected One, O Maharaja, is free from this that his essence might be counted with numerals of the corporeal world; he is deep, immeasurable, unfathomable like the great ocean."[3]

It seems clear to me from all these sayings that the Buddha was speaking of something that he knew for a fact, and which he could obviously only have learnt from personal experience. He knew the way, and he had achieved the goal, and that it was not only the cessation of conditioned or unconditioned spatial conditions, but was equally the cessation of a temporal one, is, I think, clearly demonstrated by the two following sayings:

"For him who has disappeared there is no form, O Upasiva," so said Bhagavat—"that by which they say he is, exists for him no longer, when all things (*dhamma*) have been cut off, all kinds of dispute are also cut off."[4] Therefore "Give up what is before, give up what is behind, give up what is between when thou goest to the other shore of existence; if thy mind is altogether free, thou wilt not enter again into birth and decay."[5] That is the gist of the Buddha's message, the goal he came to teach to man; it is a state wherein, firstly all form is lost whereby anyone could distinguish him, and secondly wherein there is no past—(behind), no future—(before) no present—(between),

[1] *Samyutta Nikaya*, XLI, 6–5. [2] Ibid., II–5.
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[4] Sutta Nipata, *Sacred Books of the East*, v. 1075, vol. x.
[5] Dhamma-pada, Ibid., v. 348, vol. x.

in which this time-measure, which begins at birth and ends with decay, may altogether cease.

In other terms that "other shore" beyond the stream mankind, is undoubtedly what Jesus called the Kingdom of Heaven, what I have persistently called the rise of the next wave free from the "conditioned perceptions and sensations" which make up the points of space-time in our present life, and I think that all I have been saying should open the way to the conviction that this physical world has got to be left behind. The next step can only be made through the abolition of our ignorant illusions regarding its permanency, and a freedom of the mind from its entanglements. It is superfluous to try and deceive ourselves that Jesus taught something different to what the Buddha did in this respect; as regards morals their teaching was in all essentials the same, but they were neither of them mere moralists, they were much more than that. They both realised something of Eternal Truth, the same once and for ever, and understood what mankind *is*, and what it may become, being themselves already part of that "become." They were the first swallows that presage the spring, and that mankind is subconsciously aware of this is shown by the way men have persevered in their attempt to follow them through all the vicissitudes of centuries of failure.

All great teachers, all great mystics teach the same regarding these things, for their enlightenment, in whatever land or century they may have lived, always sprang from the same sources of wisdom. Perhaps of all descriptions of that further state, those in the Upanishads are the most beautiful, therefore a few extracts from them may help to elucidate this extremely obscure problem. And let us not only read the words of these great mystic hymns, they need much pondering over in order to be understood. If ever we succeed in interpreting life in the light of these ideas, we shall eventually understand something real about the rise of the next wave on our course!

In the *Katha Upanishad* we find these very significant lines:

Second Valli:

v. 18. "The wise one is not born nor dies.
This one has not come from anywhere, has not become anyone.
Unborn, constant, eternal, primeval, this one
Is not slain when the body is slain.

v. 20. More minute than the minute, greater than the great
Is the soul that is set in the heart of a creature here.

v. 21. Sitting he proceeds afar,
Lying he goes everywhere.

v. 22. Him who is bodiless among bodies,
Stable among the unstable,
The great all-pervading Soul (Âtman)
On recognising Him, the wise man sorrows not.

To this condition the way is taught by every line ever spoken by any Indian mystic, and indeed Jung expresses the same idea in modern form: "This living spirit is eternally renewed and pursues its goal in manifold and inconceivable ways throughout the history of mankind. Measured against it, the names and forms which men have given it mean little enough; they are only the changing leaves and blossoms on the stem of the eternal tree."[1] Jung would certainly also admit the efficacy of the method advocated by all the Upanishads for entering the condition of that "soul in the heart of the creature"; apparently there is but one way: "Verily when a knower has restrained his mind from the external, and the breathing spirit (prana) has put to rest objects of sense, thereupon let him continue void of conceptions. Since the living individual (jïva: living, in the sense that it is used in the Fragments from Oxyrhynchus: 'Jesus, the living One') who is named 'breathing spirit' has arisen here from what is not breathing spirit, therefore verily let the breathing spirit restrain his breathing spirit in what is called the fourth condition."[2] And what is that "fourth condition," which all Upanishads extol? To my mind there is no doubt that it is what the West has hitherto called the "fourth dimension," that beyond the present space-time dimension; what I regard as the next wave that must arise after the human one has sunk to its trough, and although to us it still remains in the realm of hypothesis, to the Indians it seems to be something universally accepted as fact.

"The Fourth is that which is not conscious of the subjective, nor that which is conscious of the objective, nor that which is conscious of both, nor that which is simple consciousness, nor that which is a mass all sentiency, nor that which is all darkness. It is unseen, transcendant, unapprehensible, uninferable, unthinkable, indescribable, the sole essence of the consciousness of self, the negative of all illusion, the ever-peaceful, all bliss, the One Unit—this indeed is Âtman, it should be known."[3] Âtman is the divine principle in man, usually translated by the SELF, and if we may take it that Jung's idea of the subconscious is much the same thing, we apparently come very near to an understanding of what is the goal of man—the next

[1] *M.M.S.*, p. 282. [2] *Maitri Upanishad*, 6–19.
[3] *Mândûkyopanishad*, v. 7, translated by Manilal N. Dvivedi.

wave that shall arise may surely be discerned even now? I would also like to point out that in the quotation from the *Maitri Upanishad*, what is said of the breathing putting to rest the objects of sense, is a perfect corroboration of my whole philosophy: for the Indian Rishi, it is by the science of Prana or breath that the sense world is put to rest; for me it is by the Breath of the Creator that not alone the sense world but the entire universe shall be put to rest.

With these descriptions in mind, we can easily interpret the allusions to the fourth condition wherever we meet them in all the great religions of the world, but I will give a few further examples from entirely different sources to illustrate my point. In the last instance the Indian and the Chinese Taoist religions (or philosophies) deal with nothing else. To turn to the Chinese, there is in Chuang-Tsu's teaching a very fine description of the conditions transcending space-time:

"Therefore it is that, viewed from the standpoint of Tao, a beam and pillar are identical. So are ugliness and beauty, greatness and wickedness, perverseness and strangeness. Separation is the same as construction; construction is the same as destruction. Nothing is subject to either construction or destruction, for these conditions are brought together in ONE. Only the truly intelligent understand this principle of the identity of all things. They do not view things as apprehended by themselves subjectively; but transfer themselves into the position of the things viewed. And viewing them thus they are able to comprehend them, nay to master them: and he who can master them is near."[1]

Further, Lao-Tsu makes it quite clear that this condition which is to be "mastered" is a state of mental consciousness: "Without going outside his door, one understands all under the sky; without looking out of his window one sees the Tao of Heaven. The farther he goes out the less he knows. Therefore the sages got their knowledge without travelling; gave their right names to things without seeing them; and accomplished their ends without any purpose in doing so."[2]

In one case the "truly intelligent," and in the other "the sages" freed themselves from the limitations or evaluations associated with sense life, and thus entered the One. "That which is the bright space within the heart, in that this Man resides, innate with mind, transcending death."[3]

Before leaving these Eastern sages, I must compare with

[1] Ch. II, p. 19, Giles Transl. [2] *Tao-teh-king*, Chap. 47.
[3] *Taitti-riya Up.*, 1–6–1.

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The great all-pervading Soul (Âtman)
On recognising Him, the wise man sorrows not.

To this condition the way is taught by every line ever spoken by any Indian mystic, and indeed Jung expresses the same idea in modern form: "This living spirit is eternally renewed and pursues its goal in manifold and inconceivable ways throughout the history of mankind. Measured against it, the names and forms which men have given it mean little enough; they are only the changing leaves and blossoms on the stem of the eternal tree."[1] Jung would certainly also admit the efficacy of the method advocated by all the Upanishads for entering the condition of that "soul in the heart of the creature"; apparently there is but one way: "Verily when a knower has restrained his mind from the external, and the breathing spirit (prana) has put to rest objects of sense, thereupon let him continue void of conceptions. Since the living individual (jïva: living, in the sense that it is used in the Fragments from Oxyrhynchus: 'Jesus, the living One') who is named 'breathing spirit' has arisen here from what is not breathing spirit, therefore verily let the breathing spirit restrain his breathing spirit in what is called the fourth condition."[2] And what is that "fourth condition," which all Upanishads extol? To my mind there is no doubt that it is what the West has hitherto called the "fourth dimension," that beyond the present space-time dimension; what I regard as the next wave that must arise after the human one has sunk to its trough, and although to us it still remains in the realm of hypothesis, to the Indians it seems to be something universally accepted as fact.

"The Fourth is that which is not conscious of the subjective, nor that which is conscious of the objective, nor that which is conscious of both, nor that which is simple consciousness, nor that which is a mass all sentiency, nor that which is all darkness. It is unseen, transcendant, unapprehensible, uninferable, unthinkable, indescribable, the sole essence of the consciousness of self, the negative of all illusion, the ever-peaceful, all bliss, the One Unit—this indeed is Âtman, it should be known."[3] Âtman is the divine principle in man, usually translated by the SELF, and if we may take it that Jung's idea of the sub-conscious is much the same thing, we apparently come very near to an understanding of what is the goal of man—the next

[1] *M.M.S.*, p. 282. [2] *Maitri Upanishad*, 6–19.
[3] *Mândûkyopanishad*, v. 7, translated by Manilal N. Dvivedi.

wave that shall arise may surely be discerned even now? I would also like to point out that in the quotation from the *Maitri Upanishad*, what is said of the breathing putting to rest the objects of sense, is a perfect corroboration of my whole philosophy: for the Indian Rishi, it is by the science of Prana or breath that the sense world is put to rest; for me it is by the Breath of the Creator that not alone the sense world but the entire universe shall be put to rest.

With these descriptions in mind, we can easily interpret the allusions to the fourth condition wherever we meet them in all the great religions of the world, but I will give a few further examples from entirely different sources to illustrate my point. In the last instance the Indian and the Chinese Taoist religions (or philosophies) deal with nothing else. To turn to the Chinese, there is in Chuang-Tsu's teaching a very fine description of the conditions transcending space-time:

"Therefore it is that, viewed from the standpoint of Tao, a beam and pillar are identical. So are ugliness and beauty, greatness and wickedness, perverseness and strangeness. Separation is the same as construction; construction is the same as destruction. Nothing is subject to either construction or destruction, for these conditions are brought together in ONE. Only the truly intelligent understand this principle of the identity of all things. They do not view things as apprehended by themselves subjectively; but transfer themselves into the position of the things viewed. And viewing them thus they are able to comprehend them, nay to master them: and he who can master them is near."[1]

Further, Lao-Tsu makes it quite clear that this condition which is to be "mastered" is a state of mental consciousness: "Without going outside his door, one understands all under the sky; without looking out of his window one sees the Tao of Heaven. The farther he goes out the less he knows. Therefore the sages got their knowledge without travelling; gave their right names to things without seeing them; and accomplished their ends without any purpose in doing so."[2]

In one case the "truly intelligent," and in the other "the sages" freed themselves from the limitations or evaluations associated with sense life, and thus entered the One. "That which is the bright space within the heart, in that this Man resides, innate with mind, transcending death."[3]

Before leaving these Eastern sages, I must compare with

[1] Ch. II, p. 19, Giles Transl. [2] *Tao-teh-king*, Chap. 47.
[3] *Taitti-riya Up.*, 1-6-1.

Lao Tsu's description of the higher state attainable by man to the words Krishna uses to Arjuna, the hero of the Bhagavad Gita, for they are curiously identical. "Whether one would set out to the bloom of the East, or come to the Chambers of the West, without moving, O Holder of the Bow, is the travelling on that road (timeless !). On this path to whatever place one would go the same one's own self becomes. How shall I easily describe this ? Thou thyself shalt experience it."[1]

The fact that two completely different races and religions bear witness in almost identical language to the reality of this unlimited condition, must, it seems to me, carry conviction as to the possibility of man's attaining such a state. But knowledge of it is not only confined to the East, as it may seem, for Plotinus, to whom the West may lay claim, I think, is one of its most famous advocates. This idea runs like a thread through his whole system of thought, of which the following extract is but one example taken from amongst many. "In order then to know what the Divine mind is we must observe Soul and especially in its most God-like phase. . . .[2] Its knowing is not by search but by possession, its blessedness inherent, not acquired. . . . Soul deals with thing after thing —now Socrates ; now a horse ; always some one entity from among beings—but the Intellectual Principle is all and therefore its entire content is simultaneously present in that identity : this is pure being in eternal actuality ; nowhere is there any future, for every then is now ; nor is there any past, for nothing there has ever ceased to be ; everything has taken its stand for ever. . . . All that one sees as a spectacle is still external ; one must bring the vision within and see no longer in that mode of separation but as we know ourselves."[3] This is the same as was said by Chuang-Tsu, only the other way round ; actually there is no difference between transforming ourselves into the position of the thing viewed, and knowing it as we know ourselves ! And when that is accomplished both would agree that we shall enter a condition where : "Time is replaced by eternity and space by its intellectual equivalent : Mutual inclusiveness."[4] This man also spoke from experience.

I think I have now said enough to prove the existence on earth of men who knew a condition transcending space-time, but probably many of my readers have been thinking : this is all very well, but Jesus Christ, who is the greatest teacher of

[1] Dnyaneshvari Adhyaya, 6, quoted in the *Dream of Ravan*, p. 189, first appeared in *Dublin University Magazine*, 1853.

[2] Âtman. [3] *Ennead*, V, 3–9, 1–4, 8–10. [4] Ibid., V, 9–10.

all in Western eyes, says nothing of all this. But they are mistaken, for although Jesus did not teach a definite system for reaching enlightenment, or what He calls the "Kingdom of Heaven," yet if we consider all He said regarding that Kingdom, it is in no way different to what all the others have reported of that greater Life. Does He not say it is "small as a grain of mustard seed," which is the same as what the Indian called "more minute than the minute," and does it not equally become a tree of which He would certainly have agreed that it was "greater than the great." Does He not say that it is "within"? Where but in the "bright space within the heart"? I do not think that the condition of anyone who had followed his words implicitly would be different to that experienced by every great mystic of whatever creed or time. There can be no doubt that Jesus' whole teaching aimed at making man abandon exterior values and activities and turn inward upon himself—man's *own soul* was all that counted in his esteem, and any thought given to this life and its preservation was in His eyes a turning away from God, a choosing the lesser way. "He that findeth his life shall lose it, and he that loseth his life for my sake shall find it." And the way to "loosing" this life for His sake is the way of His entire teaching: if we consistently follow it we shall be born again, not of the flesh by "re-entering the mother's womb," but of the spirit; we shall thus enter something outside the conditions of the flesh whilst still inhabiting it. Those who are thus born again shall "not see death"; the Buddha would have said of them that they were beyond birth and decay, beyond the conditions inherent in time and space. Patanjali, who gave the world the greatest of all systems of mental enlightenment, said of that beyond-world condition which was his goal: "When this condition of consciousness is reached, which is far-reaching and not confined to the body, which is outside the body and not conditioned by it, then the veil which conceals the light is worn away."[1] Jesus said of it: "The wind bloweth where it listeth, and thou hearest the sound thereof, but canst not tell whence it cometh and whither it goeth; so is everyone that is born of the Spirit,"[2] which reminds one of Buddha's simile of the fire that is extinct!

But the way is not easy—have we not all heard of the "straight and narrow path"—although it is not the path of moral virtue as the theologian would have us believe, but something far more intricate than that! It is the path to the inner

[1] *Yoga Sutras*, Bk. III, v. 43. [2] John iii, 8.

man, free of all earthly desires or possessions, free of greed, hate and ignorance, free even of the hope of eternal life, only "he who knows himself shall find it,"[1] and the call to seek "within" is one which every great teacher of every world religion has reiterated untiringly. And to-day at last there exists a science which is founded on their dictum, and on that is building a new world, namely, the new psychology. Jung speaks with the same tongue as all the greatest saints when he speaks of the "unconscious": "If it were permissible to personify the unconscious, we might call it a collective human being combining the characteristics of both sexes, transcending youth and age, birth and death, and having at its command a human experience of one or two million years, almost immortal. If such a being existed, he would be exalted above all temporal change; the present year would mean neither more nor less to him than any year in the one hundredth century before Christ; he would be a dreamer of age-old dreams and, owing to his immeasurable experience, he would be an incomparable prognosticator. He would have lived countless times over the life of the individual, of the family, tribe and people, and he would possess the living sense of the rhythm of growth, flowering and decay,"[2] he would have arrived at the rise of the next wave! Were we able to identify ourselves with this unconscious we should attain all that has been said above, and using the body only as an instrument, we must become as gods.

That only so few have succeeded in achieving this enlightenment so far does not imply that it is hopeless for the rest of mankind to attempt such a thing. Those who achieved it in the past were perhaps more gifted than most, but a great many have drawn upon this inner power in other ways than the religious one. Unconscious though they may have been of the source of their power, I do not think that anyone would deny that the authors of the *Divina Commedia*, of the *St. Matthew Passion*, of *Hamlet*, of the *Missa Solemnis*, of *Endymion*, of *Faust*, were all inspired by an inner force or enlightenment that lifted them *in their creation* as much above the limitations of the body as is the mystic in his condition of ecstasy. My reader may object that these are equally far from himself, and their achievements as much outside his capacities, as are those of any religious prophets, and I certainly cannot pretend that anyone who wished it could produce the *Divina Commedia*

[1] *Fragments from Oxyrhynchus.*
[2] *Modern Man in Search of a Soul*, p. 215.

to-morrow. But I am convinced that if we once realise that there is this life within, and cultivate our capacities for releasing it by clearing the channels for its manifestations, we shall *as mankind* reach a state where all the physical conditions will have become subservient to the "Spirit"—which will be but one step from the final complete emergence in the kingdom of the mind.

I have given more time and space to this subject than is perhaps permissible in a general attempt at world synthesis, but I desired to place it in such a light that there could be no hesitation in accepting it as a basis for future development,—that seems to me very important! Once we are convinced that the most perfect men in all the ages were able to attain a state transcending the conditions that bind ordinary humanity, we must also realise that we must eventually all follow their example, for they are undoubtedly the forerunners, the first bubbles rising to the surface—but eventually the whole pot must attain boiling-point.

As shown above, any Western achievements in the direction of transcending the limitations of space-time have been purely arbitrary, but the mere fact of their occurrence, taken in conjunction with the statements of the mystics and scientists, is proof that we possess the key to a higher and more evolved condition in our own hands, not merely a philosophical hypothesis, a religious dogma or a scientific formula. Therefore, once this fact is established in our minds, it follows that instead of clinging to this physical existence as mankind has always done hitherto, which only delays the process, we should in future strain every nerve to pierce through this space-time framework, and give rise to the next wave. We now know that one period leads to another by reason of an inexorable law, and we shall have made a vast stride forward when once we perceive the right way of contributing to this end, and set ourselves to assist nature instead of thwarting her, or passively allowing ourselves to drift with the tide as heretofore.

PART III

THE WAVE BEYOND MANKIND

"WHEN you have understood the destruction of all that was made, you will understand that which was not made."

Dhamma-pada, Chapter XXVI, 383.

CHAPTER I

FREE MIND

I THINK that I have now said enough to show that in reaching the kingdom of the mind we have entered upon a new beginning, something of which we only know the first halting stages at present, but which is shown to be capable of untold future developments. In the mind we have for the first time, in cosmic evolution, discovered something which looks very like a free agent. If the mind is capable of creating its own interpretation of what is brought to it, it is clearly not bound to any formulæ presented to it by the physical world, and we discover here the seat of a liberty never dreamt of before.

But liberty did not begin with man, it began with life itself, and its growth seems proportionate to the development of brain power throughout the living world—in fact the main difference between the animate and inanimate worlds seems to lie in the freedom of action of the one as against the purely mechanical reactions of the other. The one aim and object of everything gifted with life seems to be the attainment of freedom from bondage to earth, and the most evident progress of the animal over the vegetable kingdom is its power of locomotion. Beginning with the Euglena, for instance, half plant half animal, and ending with this curious being possessed of a free mind, there is throughout the story of living things a continuous and perfectly distinct evolution towards liberty, first a physical liberty and then a mental one. At this point in evolution, the quality of liberty seems to be the mark that distinguishes each stage from the next: freedom of action from plant to animal, freedom of mind in man as against the animal's instinctive behaviour.

Seeing therefore that any step taken by life in its evolution has, thus far, been in the direction of ever greater liberty from material bonds, I think if we are ever to attain any further developments from mankind into the next rise of a wave, it is undoubtedly by way of a greater freedom still that it is to be anticipated. And any attempt to work for this development

must start by a realisation of inner freedom, as all saints have taught. But a state of perfect freedom is perhaps the most difficult thing in the world to realise, as difficult to realise as Truth! In so far as our material life is concerned, perfect freedom cannot exist: we may have no one dependent on us, but even so we are dependent on others in order to remain alive, to say the least of it. We may take ship and travel the world over, if we are rich enough, so as to have neither ties nor possessions, we may never allow ourselves any bonds of friendship, we may never stick to any rules: but we are still bound: to our money, to those who sail our ship, to those who produce our food or make our clothes, even to the necessity of intercourse! If we succeed in becoming completely selfish we are less free than ever, because getting our own way and making ourselves comfortable inevitably becomes an obsession, and everything that cuts across it, creates a wave of discontent in our minds and an increased attachment to the things that satisfy our desires, be it our passions, our possessions or even only the freedom to do as we like. Every self-indulgence creates a double tie: that of attachment and that of fear of being robbed of it. And as we thus pander to our material selves, the material world of which they form part clogs our feet ever more firmly to the ground.

There is one thing, however, that is capable of breaking this chain, namely, the conscious mind. As was amply proved above, this is the freest element yet produced in the universe, and therefore if we wish to liberate ourselves from physical bondage we must do so by means of the free within, and I have not the slightest hesitation in urging that this be our aim. Considering how organic life has been steadily marching toward realisation of an ever greater freedom, since its first beginnings, and at the same time towards an ever more predominant mind power, we cannot doubt that these two walk hand in hand, and will do so until mind has burst the last bonds that hold it captive. It might be urged that mankind has no desire to burst such bonds; that is immaterial, however, for the waves rush forward onto the beach at the flow of the tide, and each wave advances just a little way beyond the term of the last, it cannot help itself, and eventually all find themselves high on the beach of time, just where they were required to be. If the next wave to rise in the tide of approach to the Supreme One, be a wave completely freed from material conditions, it must be part of the law of our existence that we should attain that point, and although we may perhaps delay its coming, we cannot hope to

escape it. Whether we be conscious of it or not, our lives, our civilisation, all contribute to that end, and this earth has, through countless evolutions, at last contrived to produce a being that is, in the first place, capable of conscious perceptions, formed by something irrespective of will in coalition with the body; and in the second place, is so far freed from material limitations that it can project its thoughts out into the depths of space and down into the minutiæ of the sub-world. A being that may build up his own destiny step by step, owing to his capacity of regarding himself as a free agent. Were he ever to become capable of tracing his own chain of causality and of moulding its effects, in full consciousness of the results of his actions both on the present and the future of the world, his first aim must be to free himself of causality altogether. This will only be fully achieved, however, when the mind has completely freed itself from bodily conditions.

That such freedom of mind or will has ever been the secret ambition of mankind is proved by the continuous controversy that has raged round this question since the very beginning of human thought, no denials in the world have ever killed man's innate conviction that he must possess it. Instead of denying its existence, however, suppose we regard its eventual fulfilment as the goal of our present civilisation? Even though it is questionable whether we possess it at present, in accepting it as a fact, we may thereby build it up into a reality in the future. Evolution admittedly proceeds by the adaptation of the fittest to the surrounding conditions, so freedom of mind, or even the illusion of it, would not have arisen had not our conditions required it, but once born, this semi-freedom of ours must eventually grow into the great tree of absolute liberty—nature never leaves anything half done!

We saw above that the bodily functions are organised to feed the brain, from which seat the mind assumedly rules the activities of the body. The action and reaction of life upon this mind are what make it grow and develop; both the history of individuals and civilisations are the history of mind growth. "Mind emerges from brain activity to higher and higher unity; the extent to which unity is achieved constitutes the permanence of the mind. It may obtain sufficient activity to survive the death of the body."[1] I feel sure that this must eventually occur, but that day is yet far off, our minds will need much training first! Up to a short time ago the mind, except in the case of Indian Yogis, was left to develop itself haphazard,

[1] William Brown: Lecture Philos. Society, Autumn, 1927.

it was merely the instrument for the civilisation of mankind, but it was never considered with any view to a development of its power as such. But let us now suppose that the mind is something like the music inherent in a violin: if this be played with love and understanding, it is capable of giving forth strains that will delight a whole world. If, however, that same violin be left to lie in a glass case in a museum, it is as if it had never been born. Likewise, by not employing our minds to help us on our way, we merely waste our lives. Why not recognise this fact, and whether we believe in any goal or not, at least do the best we can to assist our minds in attaining freedom in a wider consciousness—there can be no doubt that this at least is a goal worth striving after.

But, of course, this cannot be done in a night, nothing can ever be accomplished except by perseverance and courage, even in this world, how much more in an attempt to attain a new condition altogether? "Let not him who seeks . . . cease until he finds, and when he finds he shall be astonished; astonished he shall reach the Kingdom, and having reached the Kingdom he shall rest."[1] When we shall have developed our powers to the utmost at this stage of our evolution, we may then with confidence project our wave on its further way; eventually even the universe "shall rest."

Not knowing our part in this universe, nor where it was leading, it was heretofore impossible to use our instrument to best advantage, but once we become aware of the Way the universe is treading, we shall doubtless learn the art of making our lives conform to it. In the past there seem to have existed some few who understood the meaning of mankind, and who were so far freed from the bondage of this life that they were able to "take it up or lay it down"; they knew the term of their individual life wave. Jesus, for instance, would not go up to Jerusalem until His time was ripe: "For my hour is not yet come"; Rudolf Steiner and Ramakrishna, to mention two established cases of this in modern times, both knew the day and hour of their death as well as Jesus, although they were not so far advanced as to *choose* it. If man can, in certain cases, foresee the term of his individual life, he must eventually become capable of controlling it, and we see here the rudiments of the greater faculty of controlling the wave of the life of mankind, and setting the duration of its period in the vaster realm of periodicity.

I do not assert that you or I may do this without further ado,

[1] *Fragments from Oxyrhynchus.*

so far the end of man or of mankind is a completely arbitrary arrangement as far as we are concerned; we are still in the condition of the man who proposed to pull down his barns and build greater, on the very day that his soul was required of him. We are not even perfectly sure that we possess the freedom of will to determine our ordinary activities, how much less questions of life and death! Therefore before building up any theory that depends for its realisation on our freedom to choose our own way, it might be as well to make certain what reasons we may have for assuming that we have any choice in the matter at all.

Many in the history of human thought have spoken of our being free, or becoming so, some few have given reasons for belief in the freedom of will, or in "determination," but I think no man in modern times has ever succeeded in giving a more completely satisfactory solution to this riddle than has one of the greatest prophets of our new religion: Max Planck—and it is natural it should be so, for it is only the trained scientific mind that can be expected to take an objective view of the case, and sift out the facts from the theories! In his book *Where is Science Going?* which is a refutation of those who maintain that his Quantum theory has definitely proved that indeterminacy is inherent in all physical phenomena, Planck shows, on the contrary, that there is nothing known in the whole world that is not subject to the law of causality. This, not in the sense that the acorn is the cause of the oak, but in the sense in which day succeeds night. And when finally he comes to the great problem of man and free will, which is the keystone of the entire arch of causality, he uses words which seem to me conclusive, *as far as they go*, just as the Law of Entropy was in its way.

According to Planck, all conduct is not only the result of the motives that inspired it, but equally, has a "causal influence on subsequent behaviour,"[1] even up to the highest and most evolved geniuses, and to the great spiritual movements, the deeper the psychologist probes, the more clearly does the causal relationship emerge. Is there then no free will or responsible action? "In a world where the principle of causation prevails universally, what room is there for the autonomy of human volition?" Planck asks. "The fact is there is a point, one single point in the immeasurable world of mind and matter, where science and therefore every causal method of research is inapplicable, not only on practical grounds, but also on

[1] *W.S.G.*

logical grounds, and will always (?) remain inapplicable. This point is the individual ego. . . . Over this realm no outer power of fate can ever have sway, and we lay aside our own control and responsibility over ourselves, only with the laying aside of life itself."[1] I think we can unhesitatingly accept this to mean that although our *external lives* are governed by causality, our subconscious motives act freely. If we consider how a trained psychologist treats his patients to-day, we must realise that he applies the law of causality systematically. Does he not cross-examine his patient until he has led him up to the root cause of his mental derangement, some experience lying buried in his subconscious mind,—which that mind had employed entirely arbitrarily however?

But let us imagine a far higher intelligence than any we know of so far, would he not, on the same line of deduction as our trained psychologist, be capable of tracing cause and effect throughout every human life? And further, would he not also be capable of anticipating future activities from the data he has obtained of the past? (Although I have not Planck's authority for this last conjecture, I believe this has already been done by certain high Lamas of Tibet.) Planck does indeed admit that there is no reason why every individual should not make himself the observer of what has happened within himself. There is no reason, at least in principle, why he should not scrutinise each experience and study it from the viewpoint of finding out the cause from which it resulted. "But, in order to carry out this plan of action, the facts of our own lives which we now place under observation would have to be distanced in the past so that our present complex of living emotions and inclinations would not enter as factors into the observation."[2] Therefore, the nearer we got to the present personal experience, the more difficult would it be to judge our own actions with the impartiality and objectivity necessary to any attempt to realise causality. "In *principle* there is no reason why we should not discover the causal connections of our own personal conduct, but in practice we never can do so, because this would mean that the observing subject would also be the object of research. And that is impossible; for no eye can see itself." Does not this inability *to trace* our individual causal connections then result in our lives being conducted *as if* we had free wills? That seems to be Planck's conclusion: "The fact that the individual here and now, in regard to his own living present act, can-

[1] *W.S.G.*, pp. 162 ff. [2] Ibid, pp. 162 ff.

not be subject to the law of causation is a truth that is based on a perfectly sound logical foundation of an *a priori* kind, such as that the part is never greater than the whole." Even though some super intelligence might be able to trace the causal structure throughout the activities of mankind yet "it would have to renounce the idea of studying the activities of its own ego at the moment it contemplated the activities of our mortal ego. . . . We cannot possibly study ourselves at the moment or within the environment of any given activity."[1] This is, it seems to me, an exact parallel of what happens in our observation of the electron, which has given rise to the idea of indeterminacy: so long as we study atomic activity *en masse* we can give an exact description of the movements of electrons, but directly we come down to pinning the electron to a certain spot, it becomes a wave and the corpuscle disappears. Likewise the chain of causality disappears directly we attempt to rivet it onto ourselves. In both cases there seems to me to be a dual phenomenon: as waves are free, so are we free in relation to our immediate destinies although, taken *en masse*, our lives take their place in the chain of causation or periodicity.

This comparison with the electron may lead us to a further hypothesis: as the freedom of the electron in its nature of wave, was responsible for the first atomic concentrations which eventually produced life, such a thing could hardly have been possible had the electron been a fixed corpuscle, so our immediate freedom of action may be the source of the next stage of cosmic evolution, the womb out of which the next wave shall arise. The freedom of action which is at present a semblance born of eyes incapable of seeing themselves, may be the first ray of a new condition of which it will be the fundamental attribute.

This fact, *combined with* the law of causality, which gives us the security that this present condition is necessarily a passage that leads to a further stage, should give us courage to use our freedom to guide the causality. Periodicity as we have studied it so far, has given us every proof that one period follows another: we have seen that life and then mind have developed and grown, together with a steady increase in freedom of activity and thought, and this should teach us that we can and must use our life waves to make our way outwards to complete Liberty from the control of physical conditions, which is clearly where the racial chain of causality is leading. Any

[1] Ibid., p. 164.

achievements in this direction in the past have merely been the mechanical outcome of cause and effect; but henceforth, let us set out on the path to freedom in full consciousness of the goal and with increasing understanding of the way thereto; the fact that it is the most difficult of any task mankind has ever had to face, cannot and must not deter us, for sooner or later it will have to be faced, and it is better we should do so of our own free choice.

This very difficulty of our task is proof enough that this is our way, for even in this world nothing that is of any real value has ever been obtained except by suffering and sacrifice—even a child cannot be born except at the risk of the mother's life—how much more must this be true of the birth of a new world? But so far the problem has never been faced as a whole, we have never considered the Way of all mankind, our judgments have always been based on the individual, or at most, the national Way; but once we recognise that we are one Wave in the great flow of the breath re-entering the Primal One, nations and individuals must begin to regard life from a completely different angle. The goal is one and the same for all the nations of the earth, therefore in this, at least, all might find common cause for unity.

If one and all could realise that matter must be overcome, and join together in the task of dematerialisation, then must the moment arrive at last, when everything will take on the nature of the ingoing breath, which will then dominate the whole universe, and we men shall enter a state more subtle, more refined, constructing instead of dissipating our elements.

Admitting that this present universe must come to an end, some scientists have suggested that the newly discovered, highly penetrating cosmic rays, might build up new worlds in the depths of space. But if this were true, we should be faced with the deadlock of eternal recurrence, which seems to me a contradiction of everything we have learnt of the universal conditions heretofore, for never and in no place is complete recurrence to be found! Also they forget that biologists and psychologists agree that life is building up, whilst matter dissipates; they admittedly work in an inverse sense, and therefore, if one would seek that which builds up in the universe, it is obvious that it should be sought for there, where the first definite signs of such a constructive process are at work. So much for facts.

Further, in considering this great Breath of God, we must realise that when the last faint whiff of the exhaling breath

has evaporated, that which will then be drawn in will no more be limited to what was there already, but will be selected from amongst unlimited *free* possibilities. Free as air—is and must be that which goes back into the being of the One; more insubstantial than energy itself is the spirit Phœnix that must arise and eventually enter into the All-unity of the Breather. Of such nature the first traces exist in mind alone of all the things we know of; even now at its outset, semi-free from the bonds of materialism, it is the greatest birth that has taken place in the universe. And it is necessary to add that what we know of it in the human being to-day is not its final condition; there is not the slightest doubt that in it lie infinite capacities for future development; once we begin to realise this fact, that future comes appreciably nearer. Even the little we know now, shows that in man a wave has arisen of an entirely new nature, something which all the progress in knowledge of the physical world, made in this last century, has not yet explained, something of which we see the results, but whose mainsprings are as mysterious as ever they were. "There is a you which is hidden from the world, not ruled by three dimensions. Personality or mind-stuff is not measurable by ordinary processes. You attempt to think your thoughts, you only think of the changes in them. You contemplate your body, it cannot contemplate itself. Events come up out of the darkness into the light of consciousness and disappear back into darkness again,"[1] a darkness as yet unexplorable and likely to remain so until that day when the mind shall contemplate its SELF. And if mind be in very truth the first rise in a new wave of an unknown species, a new departure in the universe, we shall evidently not be in a position to measure its nature until that new condition has emerged from its swaddling clothes of matter into the full light of day. Whether *we* shall then be in a condition to measure is another matter—all measures may then be seen to be superfluous!

Of that new period in wave progress, there have undoubtedly existed some few examples on this earth, and if we would attempt to glean some information regarding it, we can certainly only hope to obtain it from those who have experienced it. From all that was said of the great religious teachers in the last chapter, there can be no doubt that they did know of a condition not commonly understood by the rest of mankind, and which was most certainly a condition some steps beyond that in which we find ourselves at present. Such men were

[1] Lecture by Dr. William Brown, Philos. Society, 5, IX, 27.

freer from attachment to the physical world and therefore nearer to real freedom than any other men have been, and if we would understand something of our possibilities of mental freedom from matter, it is clear that those who have known the fullest liberty in that sense are they who would be most capable of enlightening us on the subject.

Perhaps, though, I should offer a word of explanation of my personal conception of what constitutes freedom before I begin to discuss the way thereto. To me the men who possessed the freest minds were not those who possessed the greatest amount of learning, for I am not advocating a better understanding of things pertaining to the physical world, or our relation to it; had this been the case, I should certainly have turned to Aristotle, Newton, Kant or Einstein—or some might suggest Julius Cæsar or Napoleon—what I seek are minds so wide that they embrace the entire problems of the life of mankind, so free that they are not confined to one epoch or nation, but can reach the soul of the men of all times. That such have existed is shown by the fact that the path to that state has been so persistently taught, and he evidently knew it from personal experience, who could say to man: "Make then thyself to grow to the same stature as the Greatness which transcends all measure; leap forth from every body; transcend all time; become Eternity. . . . Conceiving nothing is impossible to thyself, think thyself deathless and able to know all—all arts, all sciences, the way of every life. Become more lofty than all height, and lower than all depth. Collect unto thyself all senses of all creatures—of fire and water, dry and moist. Think that thou art at the same time in every place—in earth, in sea, in sky; not yet begotten in the womb, young, old and dead, in after-death conditions. And if thou knowest all these things at once—times, places, doings, qualities and quantities; thou canst know God."[1] Any man who knows that condition must realise a freedom so perfect that it stands out as a beacon to mankind throughout the centuries. A mind that has that vision must attain the highest peaks of human experience.

I have no space here to draw a picture of all those who have trodden this path, suffice it to give two examples that seem to me to fulfil all the required conditions, namely, the Buddha and Jesus Christ. I should perhaps add Mahomet, since he, with the Buddha and Jesus, has been the greatest power for good in the evolution of the human race, and divides with them

[1] *Mind unto Hermes*, T.G.H., Vol. II.

the spiritual leadership of mankind even to this day. But I think that a knowledge of the lives of the first two, and of the lesson they taught, which shows a uniformity of purpose only explainable by the identity of the Truth that inspired them, must convince us that Mahomet could only have drawn the same powers from the same sources. In the last instance, there can only be one Truth for the fully enlightened, and only those who possessed this, could influence mankind, until "the whole is leavened." Therefore having shown that two of the greatest leaders the world has ever known, are in complete harmony as to the path they teach to enlightenment, I can leave it to my readers to discover the same in Mahomet, Confucius, or Moses. All these men spoke truths that only become more irrefutable as time goes on, and a true understanding of their teaching throws light on every problem that confronts the human race. They obviously responded to some essential need in man, and after two millenniums and more, they are still fundamentally the leaders of mankind. Millions, I might almost say billions, of men have come and gone since their day, but no one who thinks seriously on this matter, can yet dispute their claim to pre-eminence, and therefore if we would seek the road to super-development and freedom, it is undoubtedly of such that we should ask the way.

CHAPTER II

THE BUDDHA

The Exalted One :

> Surely at all times happily does rest
> The Arahat in whom all fire's extinct.
> Who cleaveth not to sensuous desires,
> Cool all his being, rid of all germs
> That bring new life, all cumbrances cut out,
> Subdued the pain and pining of the heart
> Calm and serene he resteth happily,
> For in his mind he hath attained to peace.
>
> *Samyutta Nikaya*, x, 8.

LET us examine the case of the Buddha to begin with. Possessed of a philosophic as well as a religious mind, he was able to analyse human conditions with greater clarity and objectivity of vision than most mystics, which renders his testimony all the more valuable. Certainly I think we shall find that no philosopher or scientist ever argued their points more logically than he. To take this crucial question of freedom : although we may admit that mankind has developed an ever-increasing freedom from physical limitations, and possesses to-day a liberty of mind and will unknown to any other formation in the universe, (as far as we can judge it), still there is no doubt that the reasons offered us for attempting to complete our independence from physical conditions—which to us appear to be the only reality—are not always completely convincing. We inevitably ask ourselves : why should we seek to abandon something familiar and on the whole quite comfortable, for something entirely hypothetical ? Jesus certainly did not give many reasons for recommending people to do so—He assumed that mankind must desire it ; He probably understood the laws which must drive us to it eventually, and man's unceasing quest for eternal life is but a symptom of this, for admittedly eternal life can never exist in the phenomenal world composed of beginnings *and* endings ! Knowing this, he held out the great hope that with faith "as a grain of mustard seed " all might attain it.

But the Buddha is much more communicative. In his sermons we may find answers to any questions we may ask relating to the nature of this world, its true significance and the way of eventual escape therefrom. Granting that mankind must eventually overcome this present condition—and I think this has been amply proved in the foregoing chapters,—it seems to me that his reasoning is so far unanswerable. The Buddha regards this physical life as a passing stage, ruled by the law of cause and effect,[1] to which we are bound so long as there is any desire [2] in us of any kind, or any ignorance [3] which gives rise to desire. The accuracy of his diagnosis of the genesis of our present condition of existence becomes daily more apparent, as the science of psycho-pathology delves deeper into the human mind, and his chain of causality holds good for all time as the explanation of existence such as we have conceived it up to the present day,—and is not physical science beginning to enlighten every man on his ignorance? It seems clear that the ideas we held hitherto regarding the nature of the world as depicted by the senses were due to ignorance as well as our notions of permanence, reality of material phenomena and the rest. "The Buddhists assign ignorance (*avidyâ*) as the starting-point of individual existence, that is to say the error which causes the supposed permanence of what is merely transient. Thence comes reflex action (*samskâra*) which comprises desire (*kâma*), illusion (*mâyâ*) and all that results therefrom, and which in the embryonic being, still in potentiality, causes distinctive knowledge (*vijnâna*) to arise, first as pure possibility, but whose development immediately produces, from its beginning, the consciousness of the ego (*ahankara*). It is this which, combining with the various elements psychic, as well as corporeal, provided by the parents, confers on the individual being in process of construction its name (*nâma*) and its form (*rûpa*), that is, the "essence" and the "substance" of its individuality.[4]. . . From the various principles so far considered further result six faculties, which consist in the consciousness of principial distinctive knowledge, of the four elements in their relations with the individuality, therefore as principles of the sensible qualities (*âlambanas*), and finally of name and form together, that is, of the individuality itself; with these six faculties correspond, in the body, six organs which are

[1] *Karma.* [2] *Tanha*—grasping, craving, desire. [3] *avidyâ.*
[4] "That which is corporeal is the form; the intellectual and sensitive states are the name." Milinda Panha, II, 24.

their respective seats. The operation of these faculties . . . has for its result experience (*phassa*, literally touch, that is by extension, contact of the senses with their objects), by which is produced conscious impression (*vêdanâ*). This, in its turn, engenders thirst (*tanha*), (the craving for individual expression), and it is this craving that provokes effort (*upâdanâ*), the initial element of all individual activity."[1] From this effort is started the train of becoming (*bhava*) which leads up to the birth (*jâti*) of the individual, or the specific nature of man, and which ends in "decay and death, sorrow, lamentation, ill, grief and despair."[2]

It seems to me that if we regard this "chain of causation" in the light of modern physical science and psychology, we must realise at once that the world's aspect as known to us hitherto and appreciated by our senses is entirely the fabric of our ignorance. Had we even regarded it as the scientist knows it to be to-day, the whole existence of mankind would have been very different. Could we see ourselves as flowing electrons and protons, we should never know that birth, decay and death, to which we attach so much importance—at the most the only consciousness would have been self-consciousness. And were we ever to succeed in entering the real consciousness of our subconscious mind, we should there also overcome much of our present ignorant condition, and know no beginning in the past, no end in the future, but a present that must rise to a multidimensional wave, inconceivable to our present conception of BEING. It is, therefore, undoubtedly ignorance that has kept us from realising the true nature of the world around us, and from entering upon the path that must lead to the next rise.

But the Buddha did not abandon us to the despair of our ignorance and its results. At the same time as he recognised the chain of causation that led to man, he also recognised that the same chain, inverted, must lead to the cessation of ignorance: were illumination to take its place, then must the entire phenomenal world, as we had hitherto perceived it, come to an end. Without cause no effects could ever arise. "Verily when things become manifest to the ardent, meditating brahman, then all doubts fade away, since he understands things-with-cause . . . since he understands the cessation of causes."[3]

Having attained this understanding, the Buddha went out

[1] See René Guénon: *Man and his Becoming*, p. 112–14.
[2] Mahavagga, Vinaya Texts, 1st section.
[3] Mahavagga, Vinaya Texts.

into the world to bring enlightenment where ignorance had reigned (and reigns), and in his first sermon he laid the foundation of his whole subsequent teaching for the attainment of this end. That first sermon furnishes the reply, which is a classic for all time, to the objection which is uppermost in all men's minds, when summoned to overcome this present form of life, namely: why should we? And the answer not only gives the reason for following the path of emancipation, but also shows how it is to be accomplished. The Four Noble Truths which are at the root of the Buddha's whole doctrine (*dhamma*), are truths regarding everyman's experience in this life; three of them are facts comprehensible to all, the practice of the last is another matter! The first and second truths state the conditions of existence and their cause: birth is suffering and leads to old age, illness, death, separation from those we love, and the non-fulfilment of our hopes and wishes, all of which is suffering. Furthermore, birth, which is the cause of suffering, is composed of the "five aggregates"[1] which spring from desire. In placing desire together with ignorance at the root of all existence as man experiences it, the Buddha shows himself to be one of the most profound psychologists that have ever lived, for it must be clear to all that it is ignorance of Life's real nature that causes the desire for it. His first care is, therefore, to show what this desire produces in order that man may know exactly what is to be overcome. After showing that everything in life inevitably ends in suffering, he explains how the "five aggregates" build up the human individuality, inherent in which are the causes of suffering and also the means to overcome it. An understanding of the aggregates must eventually lead to freedom from individuality according to the Buddha, therefore let us examine them more closely.

The first aggregate is the aggregate of forms (*rûpa*), which comprises the organs of sense and their objects in their relation to individual consciousness; the second is the aggregate of distinctive knowledge (*vijnâna*), identified with thought itself, individual consciousness, or formative thought: what connects the individual with all around him; the third is the aggregate of conscious impressions (*vedana*), comprising pleasure, pain, or their absence, and other analogous feelings, produced by any perception or conception whatsoever, whether external or internal; the fourth is the aggregate of judgments (*saññа*), denoting the knowledge which is generated from words and

[1] *Skandhas.*

names as well as from symbols or ideographic signs (all the knowledge we acquire), and, moreover, it implies the existence of a true relation between the sign and the thing signified; the fifth aggregate is that of predispositions (*samskâra*)[1] which includes all the modifications of our conceptions of existence under the impulse of affections, desires or aversion. At first sight it may seem questionable that all these aggregates, which are at the basis of our natures, do really lead to suffering, but if we consider life and how that: "birth is suffering; decay is suffering; illness is suffering; death is suffering; presence of objects we hate is suffering; separation from objects we love is suffering; not to obtain what we desire is suffering";[2] and many other like experiences, we shall in the end agree with the Buddha that suffering is inherent in all the conditions of life, and if we recognise that the aggregates springing from desire are responsible for the nature of the living being, as he is at present, it becomes obvious that any effort towards a different condition must begin by an abolition of these.

If that be the case, however, the problem is: how are these aggregates which arise from desire (or craving) to be prevented from arising, how and by what means may the causes of suffering be uprooted? To this the two last noble truths supply the answer. Suffering can only cease when passionlessness, and "cessation of this very craving" are attained, by "the laying aside of, the giving up, the being free from, the harbouring no longer of this craving." And in order to attain this passionlessness and abolish craving, man should abandon a life "given to pleasures, devoted to pleasures and lusts," for this is "degrading, sensual, vulgar, ignoble and profitless"; but he must also avoid a life given over to mortifications, for these are equally "painful, ignoble and profitless"; there is, therefore, only one way, namely, the Middle Way, which consists in following the Eightfold Path contained in the fourth Noble Truth, that is: "Right views, right intent, right speech, right conduct, right means of livelihood, right endeavour, right mindfulness and right meditation." Here there is no room for craving after worldly pleasures, nor after the pleasures of the hereafter, to be bought by mortifications; this is that straight and narrow path which all the highest

[1] The meaning of this word is the most difficult of any in Sanskrit to render into English: synergies or modifications are also often used in translation.

[2] Mahavagga, First Sermon. "Foundation of the Kingdom of Righteousness."

have trod, and which is undoubtedly the most difficult of any to achieve. But as every birth, of worlds as of men, is the fruit of travail and upheaval, why should a birth into an utterly new condition be any different? I would like to sum up all that I have said of the Buddha's doctrine by giving a very beautiful little sermon of his, which I think is his most perfect expression of the freedom I am setting out to discover.

At Savātthī. . . . Then he (the Exalted One) said:

"Attachment, brethren, is bondage; aloofness is freedom. By attachment to body, brethren, consciousness, if it get a standing, may persist. With body for its object, with body for its platform, seeking means of enjoyment, it may come by growth, increase, abundance.

"Were a man, brethren, to declare this: 'Apart from body, apart from feeling, apart from perception, apart from the activities, I will show forth the coming or the going or the decease or the rebirth of consciousness, or the growth or the increase or the abundance of consciousness,' to do that were impossible.

"If lust for body, brethren, is abandoned by a brother, by that abandonment of lust, its foothold is cut off. Thereby there is no platform for consciousness. Likewise as regards lust for feeling, perception, the activities. So also, brethren, if lust for the consciousness element be abandoned by a brother, by that abandonment of lust its foothold is cut off. Thereby there is no platform for consciousness. Without that platform consciousness has no growth, it generates no action (or conception) and is freed: by freedom it is steady: by steadiness it is happy: owing to happiness it is not troubled. Being untroubled of itself it becomes utterly well, so that it knows: 'Destroyed is re-birth, lived is the righteous life, done is the Task, for life in these conditions there is no hereafter.'"[1]

This description of the Nirvana state which shall succeed to our present condition as being "quiet," "blissful" and "free," is perfectly in keeping with that teaching of Jesus regarding the "rest" which he who reaches the Kingdom shall find, and if further we compare this saying with the surprised joy of the man who found the hidden treasure in the field, we may accept it that his astonishment is the bliss that the Buddha speaks of, and both therefore teach that at the end of the Way lies the Kingdom or Nirvana, which is rest or quiet from the agitation of life and individuality—and perfect joy.

I feel convinced that few, if any, in the whole history of the

[1] *Samyutta Nikaya*, XXII, ¶ 53–1, Pali Text Society Publications.

world have known more about the conditions of the next wave that must arise than did the Buddha, nor of the way to achieve that end; he was truly a forerunner, perfectly conscious of his condition—and what he said regarding it must become more and more valuable as we progress in the knowledge of what is the true goal of mankind. Undoubtedly the Buddha can speak to our most enlightened psychologists to-day in a language they know, and teach us all much that we must learn. I cannot refrain, therefore, from giving one more extract from his teaching which I think is particularly convincing to anyone possessing any modern knowledge either of physics or psychology. In one of his most famous sermons, the Buddha starts by speaking of the "eight positions of mastery" over the delusion arising from the apparent permanence of external things (which, although also apposite, I cannot go into here), and then follow the eight stages of deliverance "from the hindrance to thought arising from the sensation and ideas due to external forms."

"A man possessed of the idea of form sees forms" (understands their relation to his sense perceptions, realises what creates and makes his conception of them); "this is the first stage of deliverance." "Without the subjective idea of forms he sees forms externally" (he sees forms as they are in themselves, much as a scientist sees the ingredients of forms to-day, objectively, not in relation to himself—or as the biologist might see the frog he is dissecting, apart any wishes or desires of his own); "this is the second stage of deliverance." "With the thought 'it is well,' he becomes content" (concentrated; this verse is very difficult to understand, but it seems to denote a condition wherein our volition ceases, and we accept what is around us without preoccupation, training our minds to concentrate); "this is the third stage." . . . "By passing quite beyond all idea of form, by putting an end to all idea of resistance, by paying no attention to the idea of distinction, he, thinking 'it is all infinite space,' reaches (mentally) and remains in the state of mind in which the idea of infinity of space is the only idea that is present" (I think this stage has been brought nearer by the present-day science of physics. Admittedly we can so far only achieve a knowledge of infinite space mentally, it has not yet entered our consciousness that everything we see as solid mass: our trees, our houses, our bodies, are merely rather thicker waves of air, a mere aggregation of protons and electrons, but undoubtedly such consciousness will eventually be attainable); "this is the fourth stage." . . .

"By passing quite beyond all idea of space being the infinite basis, he, thinking it is all infinite reason, reaches (mentally) and remains in the state of mind to which the infinity of reason is alone present" (the reason which is recognised as being the constructor of the universe): "this is the fifth stage." The next stages I cannot comment upon as they are something we must just accept from the lips of one who obviously knows them from experience, as we, non-mathematicians, might accept the teaching of Einstein, conscious that we cannot follow his reasoning yet feeling sure that he knows what he is talking about, and we may therefore believe his assurances and draw our own conclusions. "By passing quite beyond the mere consciousness of the infinity of reason, he, thinking nothing at all exists, reaches (mentally) and remains in the stage of mind to which nothing at all is specially present"; "this is the sixth stage." . . . "By passing quite beyond all idea of nothingness, he reaches (mentally) and remains in the state of mind to which neither ideas nor the absence of ideas are specially present"; "this is the seventh stage." . . . "By passing quite beyond the state of neither ideas nor the absence of ideas he reaches (mentally) and remains in the state of mind in which both sensations and ideas have ceased to be"; "this is the eighth stage of deliverance."[1] "Those who, after leaving in this world what has been seen or heard or thought, and all virtue and (holy) works, after leaving everything of various kinds, after penetrating craving, are free from passion, such indeed I call men that have crossed the stream"—of this world period.[2]

From this last we are still very far removed. Jesus clearly knew that condition and realised he had attained it: "And no man hath ascended into heaven, but he that descended out of heaven, even the Son of man, *which is in heaven*,"—but it seems to me that we are on the way in a curious roundabout fashion. Do not the greatest scientists to-day regard everything as waves of energy, have they not thereby put "an end to all idea of distinction," have they not mentally reached the conception that everything is just "infinite space"? They seem to me clearly the first high priests of the new world-religion; that we have not yet recognised them as such, comes from the fact that we are accustomed to regard both religion and its priests as something apart from life, they are tied up in our minds with morality, whereas in its real sense, religion

[1] Maha-Parinibana Sutta, Chap. III, vv. 34–41.
[2] Sutta-Nipâta: Nandamânavapukkâ.

is a-moral: it is primarily the search for the "wood beyond the world," and only in so far as the realisation of the highest idea of life contributes to that end, is morality concomitant with religion. Nietzsche expressed in words that might be the Buddha's, the difference between the follower of canonical religion and the true religious leader whose nature I am trying to express: "The noble man desireth to create new things and a new virtue. The good man willeth that old things be preserved."[1] The good man is the orthodox man of whatever creed, the noble one is the leader, the creator of new ways, new values, he will eventually be the founder of the new wave; he does not seek to make men moral but to drive them on to a wider, wiser and less limited form of existence than is our present one.

"The Tathagata, brethren, who being an arahant, is a fully enlightened one, because of disgust at body, of the fading out of body, of the ceasing of body, is called 'freed without grasping,' 'fully enlightened.' That brother who is freed by insight, because of disgust at body, of the fading out, the ceasing of body is called 'freed without grasping,' freed by insight." . . . (Follows the same disgust at feeling, at perception, at activities, at consciousness.) "Now herein, brethren, what is the distinction, what is the specific feature, what is the difference between the Tathagata, who, being arahant, is a fully enlightened one, from the brother who is freed by insight? . . . Then listen, brethren, and apply your minds closely. I will speak. . . . The Tathagata, brethren, who, being arahant, is fully enlightened, he it is who doth cause a way to arise which had not arisen before; who doth bring about a way not brought about before; who doth proclaim a way not proclaimed before; who is the knower of a way, who understandeth a way, who is skilled in a way. And now, brethren, his disciples are wayfarers who follow after him. That, brethren, is the distinction, the specific feature, which distinguishes the Tathagata, who, being arahant, is fully enlightened, from the brother who is freed by insight."[2]

That is he who has entered upon the new wave, has left humanity for ever—and where one has gone, others may surely follow!

[1] *Thus Spake Zarathustra:* Of the Tree on the Hill.
[2] *Samyutta Nikaya,* XXII, 586.

CHAPTER III

JESUS, SON OF MAN

"My brother, eat thy bread, for the son of Man is risen from among them that sleep."

Gospel according to the Hebrews.

I

I HAVE now arrived at a point where I am inevitably faced with the necessity of speaking of Jesus Christ. I would have avoided doing this had it been possible, for, firstly, I firmly believe that none is fit to speak of Him who has not walked in His footsteps and experienced at first hand what His teaching really means; secondly, far too many people have talked and written about Him already, instead of thinking and doing; and lastly, but chiefly, He is a personal experience to anyone who thinks seriously about Him, and therefore if one happens to advocate a slightly different conception of Him to that accepted by the majority, one necessarily offends the susceptibilities of many good and sincere people,—which I have no desire of doing, knowing that feelings run high on these subjects! However, I will at once make my *confessio fidei*, and after that if there be some who would prefer not to hear Jesus spoken of in this unorthodox fashion, they need only skip this part, and turn to the second half of this chapter.

After working out my Periodic Law through all its phases, up to this point, without any preconceived opinions about the part that Jesus might eventually play in the world breath, in the end He seemed to emerge quite simply and naturally, without there being anything miraculous about it, or any sudden leap into new and unprecedented phenomena, as the highest pinnacle the human race has yet achieved.

When once we realise that out of mankind must be born a further stage in the course of waves that lead up to the final break of all waves on the beach of God, if we then look around us for signs of such a stage, our eyes are inevitably drawn to the Buddha, to Jesus and to Mahomet, in whom there are unmistakable signs of a more perfect condition rising up out of this human one. I have no doubt that they are the firstfruits

of the next wave that will arise when that of mankind has sunk to rest,—they are the first shafts of light that shoot up into the sky from behind the horizon at dawn, the promise of the sun to come. This really says everything, but as I have attempted to make my readers understand something of the significance of the Buddha in this relation, I cannot omit to speak of Jesus also, more especially as He seems so much nearer and more comprehensible to us. But we may as well face the fact that in regarding Jesus in the light of a forerunner heralding a new world condition, we shall have to turn our whole conception of Him upside down. Instead of considering Him as one who descended to earth from out of celestial regions, a superhuman being from the first, my conception implies a sending him up from earth: instead of a descent, a rise from mankind into a Son of man. And this is what I shall attempt to describe.

Before anything else, however, I would like to apologise for leaving the precepts of Jesus out of the question altogether, but when I began to write of them, I very soon discovered that this was too vast and controversial a subject to be dealt with in these pages. They would require a volume to themselves in order to be understood from the point of view of Jesus' place in the Periodic Law. I will therefore confine myself to an attempt to show what Jesus Himself seems to have considered his role to be,—in relation to mankind and to the breath of God we have been pursuing thus far. If I succeed in this, it is then inevitable that we shall understand His teaching in a different way to heretofore. The meaning of one who says: I give you the means to come and be as I am, is necessarily different to that of a being who is fundamentally divided from us by a supernatural birth! This does not mean that I do not think He was different to us however, for He most certainly was; though not by birth, but by growth, and I firmly believe that it is a misconception of this point that has hampered and retarded the interior "leavening" of Christianity for 2000 years.

Although half the world may be so-called "Christian" today, there is not one in a million who is a true follower of Jesus, and who, realising His ideals, lives accordingly, and I believe that the reason for this is that He has either been regarded as a supernatural being, or as one more of the many myths evolved out of the brain of man from time to time—there has been no other choice. Anyone who questioned what was taught regarding Him in a sincere spirit of enquiry was always met

with the reply: "You must believe because He was the Son of God," and who could ever hope to follow in the steps of such a one? That was all very well until the scientific era set in, but to-day, rightly or wrongly, such a reply is only considered fit for children, and it is even questionable whether it improves the native of darkest Africa to replace his age-worn superstitions by a new one! And as regards the thinking world, this treatment of Christianity is likely to undermine its authority altogether. In these times we attack everything that is served up to us with searching questions, or explode it with the dynamite of instructed and logical reasoning, and religion cannot hope to escape unmolested. But I feel convinced that if Jesus' teaching were put into the melting-pot it would emerge with greater power and more refulgent Truth than ever before. It would then become clear that His knowledge outstripped the ordinary knowledge of mankind by nineteen centuries, and, although all the formulæ of orthodox Christianity should crumble to dust, out of the ashes the personality of Jesus must arise supreme.

But besides putting His life in a wrong perspective, the haze of our deification of Jesus seems to have obscured our minds to the fact that, although He certainly never denied being the "Son of God," at the same time He always spoke of "our Father." That could only mean one thing, namely, that in His eyes all men are sons of the Father, and the difference between one and another is one of degree, not of condition. "If a man love me, he will keep my word; and my Father will love him, and we will come to him and make our abode with him."[1] And keeping His word does not imply a leap from natural into supernatural, but a step by step pursuance of the way, his "new and *living* way," which, even had Jesus been the first, He would not forever remain the only one to tread. Anyone reading His words with an open mind, must realise that He intended all men to reach His state: "If I be lifted up I will draw all men to me?"[2]

It seems to me quite clear that this was the way in which Jesus' disciples regarded the matter, they do not seem to have contemplated the possibility of not being able to follow in His footsteps, in fact their whole teaching has but this one end in view; had they regarded Him as conceived by God in any different way to themselves, they would certainly have spoken differently: "Have this mind in you which was also in Christ Jesus," says Paul, and John is even more explicit: "Beloved,

[1] John xiv, 23. [2] Ibid. xii, 32.

now are we children of God and it is not yet manifest what we shall be. We know that if he shall be manifest we shall be like him; for we shall see him even as he is."[1] That is, when we shall have entered upon the next period, whatever it be, that in which He was and (as far as we can understand) is, we shall be like Him, and understand His true nature. It would be impossible to discover a clearer refutation of any inherent difference in Jesus, implied or otherwise. We *are now* children of God, but the rest is unknowable, except that we shall be the same as Jesus when we have prepared ourselves. Does He not say so Himself in so many words: "He that believeth on me, the works that I do shall he do also, and greater works than these shall he do,"[2] believe, that is, in His knowledge, in His infallible judgment, as we might believe in the wisdom of Einstein, of Planck or of Jung, who might any of them have uttered these same words. Once we recognise this fact and replace faith in the supernatural by faith in a wisdom which was so far in advance of its time, that it has been mistaken for divinity until the present day (as might Volta's or Ramsey's or Marconi's two hundred years ago) we shall begin to take His words as literally as we take those of our present-day wise men, and discover that essentially there is nothing to prevent our doing His "works," except our own infirmity of purpose!

Seeing, however, that Jesus' knowledge resulted in a life so completely different to ours that it has led to the idea that He possessed supernatural powers, it is clear that if we are ever to follow in His steps it is nothing short of a new life altogether that is required of us, which is corroborated by the fact that the words "life"[3] and "living"[4] when used by or in relation to Jesus—"the living One"[5]—evidently imply something entirely different to the usually accepted sense of the term. If there be one thing about which we can have no doubt whatever, it is that we are alive, therefore when Jesus says: "I came that they may have life, and have it more abundantly,"[6] it is clear that He must have meant life of another kind to ours, and I think, in the words which are some of the greatest He ever uttered, He explains what He meant: "I am the Way, the Truth and the Life."[7] He was not *on* a way, but was *the* Way, and that Way was inspired by a Truth that is obviously fundamental to the new form of life which He came to give—and His life has in it the first germs of Life in itself, THE LIFE, not as is ours: life mixed with all the

[1] John iii, 2. [2] Ibid. xiv, 12. [3] *Fragments from Oxyrhynchus.*
[4] Ibid. [5] Ibid. [6] John x, 10. [7] John xiv, 6.

ashes of physical worlds. No man ever spoke more clearly; obviously His way and life were different to any other man's, and He must have been aware of the reason for it: He had conquered for Himself "the way of God,"[1] and His experience had probably opened His eyes to the true nature of what He had left behind, and shown Him that men are still, more than half, belonging and subject to the material world, and that in so far, they are not fully "alive." But if and when we learn His "Truth," we shall inevitably pursue the "Way" it teaches,—("cross the stream")—and enter the Life, free from death and all the other constituents of physical existence, to which it must inevitably lead. "If ye abide in my words . . . ye shall know the truth and the truth shall make you free,"[2]—free of this world in a state which must be the rising of a new wave. These words also explain some sayings of His that have always seemed miraculous and devoid of common sense up to the present: on various occasions He says: "If a man keep my words, he shall never see death,"[3] or words to that effect; of course this could not have meant death in the ordinary sense of the term, since there is no body born that is not subject to death, but if "some standing there" had understood His words and entered into the "life" He came to give, such were in a true sense "living," and death would be no more to them than a throwing off of a cloak that had become useless.

What this greater Life consists of, no one can really explain, Lao-Tsu says of it: "He who knows Tao does not speak about it, he who speaks does not know it,"[4] and Jesus admits that He speaks of It in such a way that: "seeing they may not see, and hearing they may not understand," only by experience of it may anyone know. But any man who has begun to understand will realise that such a life as Jesus experienced is like a fountain of living water, welling up in the soul: "as the Father has life in himself, so hath he given to the Son to have life in himself,"[5] a life without end, unmixed with anything that is not life: (Life as it is IN-ITSELF.)

But Jesus seems not only fully aware of the greater life stage that must grow out of this one, the sonship of mankind, but He definitely accepts the role of forerunner. He knows that all mankind must eventually tread His way, and out of this knowledge He can give the promise that no other man has ever given: "because I live, ye shall live also."[6] What

[1] Matt. xxii, 16. [2] John viii, 32.
[3] Ibid. viii. 51. (Note. See also: Mark ix, 1; Luke ix, 27.)
[4] Tao-teh-king, 56[1]. [5] John v, 26. [6] Ibid. xiv, 9.

more could any man say! But mankind, even to this day, does not seem to have realised that there is anything in all this but a post-mortal existence in a problematic "heaven"; it does not seem to have struck men that Jesus did not use the future tense but the present one in all such sayings, and that what He wanted was to make men *live* here and now. And if we consider all that He and the Buddha were, and taught the world, regarding another condition, it is amazing that no one has yet taken the trouble to examine their teaching, not in a spirit of denial, but in one of objective enquiry, free of all the trappings of doctrinaires and churches. The Buddha gave perfectly clear instructions as to what it is that has to be overcome, in order that men may attain a condition beyond our present one; Jesus' life is a perfect example of one who has freed Himself from these present conditions, and can say with truth: "I am the resurrection and the life"—that which has come alive out of what was dead; and although we all belong to the "dead" at present, yet it is clear that we must all eventually "resurrect," bring the son of man to birth, and that Jesus knew this, is proved by the fact that His whole work aims at opening the way to it: "he that believeth in me, though he were dead, yet shall he live; and whosoever liveth and believeth in me shall never die."[1]

Any attempt at a wider understanding of Jesus' life and aims must necessarily begin with the question: how did He build up that new life in Himself, how are others to build it? Surely as a mountain is built; neither He nor any man may leap by sudden miracle into a supernormal existence, every step follows the last, as has been amply proved in the course of this work, and the future must be constructed on the foundations of the wisdom acquired by mankind through the ages. When Jesus said to the Jews: "I have come to fulfil the Law, not to destroy it," He showed that He realised that His teaching could only take root in soil already prepared, and that He fully intended to build on the faith of His people. The world would not know Christianity to-day, had Jesus preached to any other race. Every great teacher rises out of the heart of a religious people, as the culminating soul of that people. The Alps bear Mt. Blanc, but it takes the Himalayas to carry Everest, and only a people who considered themselves God's people as did the Jews alone, could have given birth to one who understood that in the Primal One was universal "fatherhood."

[1] John ii, 25.

But the inner inspiration that made Him the Christ or Messiah is a different thing altogether. That was not derived from any law, nor negotiable by exterior means, nor sent by miraculous intervention, it was drawn from out of the depths of His own genius. He called the condition that thus arose the "Kingdom of Heaven," but this was no place, no better world, but a state of mind or soul, something to which all men might have access did they but pursue "the Way." "Strive therefore to know yourselves, and ye shall be aware that ye are the sons of the Father; ye shall know that ye are in the (city of God) and ye *are* the city."[1] It is clear that those words were spoken by one who had found it, and, out of His own experience of the way thereto, He tried to teach others; had He been different from them by birth He could never have given His hearers those instructions.

And this brings us to another age-old misconception of Jesus. If men had to strive to find the city of God within, they obviously could not buy it like some universal panacea! Were there any means of so doing, the world would be very different from what it is. But this is what has always been implied by the baptismal ceremony, for which I cannot find any justification in anything Jesus said or did. I shall here be reminded of the words: "Except a man be born of water and of spirit, he cannot enter into the Kingdom of God."[2] But if we remember what He said to the woman of Samaria: "whosoever drinketh the water that I shall give him shall never thirst; but the water that I shall give him shall become in him a well of water springing up to eternal life,"[3] I think we may take it, that in both cases He was speaking of the same "water," and that it was no element, but the life-giving water of His words that must result in a new birth. His whole teaching refutes the idea that He would ever have thought for a moment that any physical application of water could bring about the new birth He was speaking of, it was so obviously a spiritual experience.

And as regards the story of His baptism in Jordan, it seems to me, after studying the facts, that it was quite simply the story of His attainment of enlightenment (the same experience as the Buddha's under the Bo tree, or Paul's on the road to Damascus) told in symbolical terms. If we read the commonly accepted version, not as a biographical note, but as an allegory, many things will become clear that we did not realise

[1] *Fragments from Oxyrhynchus.* [2] John iii, 5.
[3] Ibid. iv, 14.

before. Firstly, we should remember that in the contemporary Orphic mysteries, "Joannes" stood for fish, namely, something that came up out of the waters, and in Jewish literature, Jonah also means fish, and both were used to symbolise a new birth, which symbolism obviously had its origin in child-birth, or even earlier, in the birth of life itself out of the primal waters, which, as shown by many myths, was intuited by the human race since time immemorial. Secondly, the dove was another symbol much used in those times, to denote a spiritual birth, both by the Jews, who remembered the sign of new life brought to Noah by the dove, and by the Greeks, for whom it was the symbol of Aphrodite, the Goddess of Love, whose birth out of the waters signified, in the mysteries, the birth of the soul. Therefore, taking these things into consideration, it then transpires that Joannes represents the birth of the new life that had come to Jesus, and the dove proclaims that it was not a new material life, but a new spiritual state into which He was born, and the whole story is quite plainly the narrative of what happened to Him after He had completed His term of self-training in the wilderness—not a prescription for the use of others! By perfect self-conquest, as told in in the story of the temptations, Jesus clearly attained what in Buddhist terms is called "enlightenment," that is the new birth in the spirit, and that seemed to those who knew about him so momentous an occurrence that they could only describe it by saying that "the whole fount of the Holy Spirit"[1] descended upon Jesus. But this was purely His own spiritual experience. I cannot discover anything in the whole New Testament that might lead us to suppose that He thought anyone would enter the Kingdom or realise His teaching more fully by means of any formal act, baptismal or otherwise. In fact St. John clearly states that: "Jesus himself baptised not, but his disciples,"[2] and the only time that Jesus spoke of baptism, it was in the future tense and obviously referred to His coming ordeal: "But I have a baptism to be baptised with; and how am I straitened till it be accomplished!"[3] I therefore think it is time that we abandoned the idea of this short cut to Heaven, and turned to an earnest consideration of the means of finding it which Jesus does advocate: "*Seek ye* first the Kingdom of God and his righteousness and all these things shall be added to you"[4]—nothing He ever said could justify anyone in thinking there could be any other way!

[1] Gospel according to the Hebrews.
[2] John iv, 2.
[3] Luke xiii, 50.
[4] Matt. vii, 33.

Further, a close examination of all Jesus' words concerning it makes it perfectly plain, it seems to me, that His "Kingdom of Heaven" was in no sense a reward He was offering to those who followed Him in this life. We only need remember His reply to the mother of Zebedee's children: "Ye shall drink indeed of my cup, and be baptised with the baptism that I am baptised with: but to sit on my right hand and on my left (that is, have a position in some after-life realm) is not mine to give, but it shall be given to them for whom it is prepared of my Father,"[1] and we need only read the parable of the wedding feast to know how they are chosen! Jesus' teaching was so definite on this point that I can perfectly well understand that the "ten . . . were moved with indignation" when they heard these questions. It seems incredible that James and John could have lived at His side for so long and yet countenanced such a question from their mother, for it is palpable that all Jesus' teaching concerning His Kingdom is of a condition, not a place—something to be achieved not obtained. "The Kingdom of Heaven is like to a grain of mustard seed which a man took and sowed in his field: which indeed is the least of all seeds: but when it is grown it is the greatest among herbs and becometh a tree, so that the birds of the air come and lodge in its branches."[2] Such a description could never have been applied to a post-mortem heaven, a land to which people who were accounted worthy might enter after this life—these words make it clear beyond any manner of doubt that this kingdom of which Jesus taught is something that grows, that man must cultivate, that starts as something small and insignificant—hardly noticeable—and ends in being something so great that all may see it and "lodge in its branches." And any positive statements that Jesus ever made regarding that "Kingdom" imply the same thing: it is like a leaven which a woman hid in a measure of meal, till the whole was leavened, that is the finest comparison of all, no simile could express it better. Within all men that leaven lies hidden, most men carry it in them without recognising it, but it is doing its leavening all the same, and whether they be conscious of it or not, there are many who are not only being leavened themselves, but are spreading the Kingdom all around.

For me the first gates to the Kingdom were opened by Lafcadio Hearn twenty-eight years ago, they were opened a little further by St. Francis of Assisi sixteen years ago, and the most momentous leavening of all was accomplished by Sir Arthur

[1] Ibid. xx, 23. [2] Ibid. xiii, 31–32.

Eddington; two out of these three teachers had no intention of being teachers in this sense, and yet the fact that they speak from out of a greater, more profound understanding of realities than most men, gives them the power to influence others. I speak of these and their "leavening" power, but every person who has had great turning-points in life will be able to point to someone who either by words or writing has opened his or her eyes to wider horizons: among men now living P. B. Clayton has done much, C. G. Jung has a wide circle of influence, Krishnamurti also, to mention only a few, and history is full of the great and small of all nations who have contributed their share to the leavening of the whole. But, of course, those who have really understood something of what Jesus gave to the world have had a greater chance of enlightenment than most; could they but have carried forward His teaching undiluted, the Kingdom of Heaven would be almost here! Did He not say: "The Law and the prophets were until John: since that time the kingdom of God is preached and every man presseth into it"?[1] But not enough by a long way, even now, after two thousand years.

Just as it was beginning to look as if men were as a whole becoming more civilised, and the leavening was slowly spreading to all parts of the earth, the European war burst upon mankind, and showed that the plant was rotting at the core. How could anyone be expected to believe in a teaching of love when the chief protagonists were the loudest proclaimers of hate? I do not believe that this disproved Jesus' teaching, however, but only the caricature of it that has been evolved by mankind. He stands where He always stood, but how many are there that practise what He taught? Sometimes I am inclined to believe that we have arrived at the day He prophesied, when there are "wars and rumours of wars," but He also added, "and this gospel of the kingdom shall be preached in all the world for a witness unto all nations; and then shall the end come";[2] perhaps we are not so far from it as it might appear! It is certain that there are thousands of humble men and women all the world over who are "not far from the Kingdom," but who, just because they are true followers of Jesus, are content to become "as little children" and make no noise about it. But besides these, there are also writers like Renan, like Joergensen, like Bruce Barton, like the anonymous author of "By an Unknown Disciple," or teachers like Dick Sheppard, like Padre Pio, like Sundar Singh, for instance, who, by attempting to make

[1] Luke xvi, 16. [2] Matt. xxiv, 14.

Jesus' life and teaching a living thing in our daily modern existence, prove that He is still an influence in the world—that the mustard tree is still growing. And the link between all people who have realised something of the Kingdom—even though as individuals they may know nothing of one another—is the territory of the Kingdom of Heaven, as Jesus intended it should be, and when any of its citizens meet either in the flesh or in the mind, there is an immediate recognition. All pay tribute to Cæsar as citizens of the world, but at the same time they know that God's Kingdom is "not of this world," and they render to God the things that are God's, thereby proving themselves citizens of that Kingdom also. Within, around, invisible, intangible, but in truth like the pearl of great price, for which those who find it abandon all else—that is the Kingdom into which we must enter in time. And once men realise—that is, take for granted—that "The kingdom of God cometh not with observation; neither shall they say Lo here! or Lo there! for behold the kingdom of God is within you,"[1] they have made the first step towards attaining it. For therein lies the whole secret, it is precisely this Kingdom within that all men will have to seek in the end, nothing that can be pointed to in the physical world without—that will have to be left behind. But Jesus not only proves by His life, but promises again and again, that those who seek shall find, and to those who knock it shall be opened: "for there is nothing covered that shall not be revealed; and hid that shall not be known."[2]

If we read the Gospels with this idea in mind Jesus' intention transpires ever more clearly: "If any man will come after me (follow His Way) let him deny himself (this earthly self), and take up his cross (the cross of mankind) and follow me (to the mount where the cross can be left behind for ever). For whosoever shall save his life—or soul—shall lose it (because the very wish to save oneself as an individual, constitutes the bond to human personality, and excludes freedom), but whosoever shall lose his life for my sake and the gospel's (die to all we now consider ourselves alive in), the same shall save it." In these words lies the whole substance of the Way that Jesus puts before mankind, and the final words of this great passage make it clear that what we "save" is of the same non-material nature as the ideal itself. "For what shall it profit a man if he shall gain the whole world and lose his own soul, or what shall a man give in exchange for his soul"; [3] if he has the whole world he still belongs to that which is a phase that has to be overcome,

[1] Luke xvii, 24. [2] Matt. x, 26. [3] Mark viii, 34–37.

is of the past, he is clinging to a condition that is breathing its last, as we saw above, and nothing can be a substitute for the soul, wherein lies the new life that must arise. And I think to-day we are making some progress in that direction—it is already much that the "soul" is no more merely a vague supposition, but that we have the certainty of its existence!

All the greatest teachers have known that the "losing" of this life must become the way of all mankind, in order that a new birth into Nirvana or the Kingdom of Heaven might be accomplished, therefore in demanding of His followers that they should deny themselves, and lose their lives for His sake, Jesus did not claim anything exceptional from them. If anyone were to follow the teaching of the Vedanta, of the Buddha, or of Lao-Tsu implicitly, they must also lose the whole world and gain their own souls—and by taking Jesus' words literally we must reach the same detachment from the things of this world as do Indians when they attain "Samadhi." I do not deny, however, that the attempt to put His lesson into effect is the most difficult thing in the world, but, when achieved the result would certainly be a complete liberation from the conditions in which mankind has existed up to the present, and an entry into a state as new as any celestial kingdom ever imagined: "Marvel not that I said unto thee, Ye must be born again. The wind bloweth where it listeth, and thou hearest the sound thereof, but canst not tell whence it cometh, and whither it goeth: so is everyone that is born of the Spirit."[1] Can anyone tell to-day, or has anyone ever told where lies the subconscious or the soul? That is admittedly outside all designations of time and space, and that idea is to our modern minds perhaps the nearest approximation to a conception of the nature of that which shall be "born again" of the Spirit, although, until we are so born again, that nature must remain as unfathomable to us as the wind!

Although I said in the beginning that I could not go into Jesus' precepts for the guidance of our lives in the short space I could afford in this book, yet as I spoke of the Buddha's Four Noble Truths, so must I speak of the supreme commandment that Jesus gave to the world, which lies at the root of His whole life and teaching, and which may be regarded as His particular contribution to mankind. Before He died He gave His disciples "a new commandment," which was evidently so important both to them and to Himself that it is reiterated

[1] John iii, 7, 8.

many times in the course of their last talk together: "A new commandment I give unto you, That ye love one another; as I have loved you, that ye also love one another . . .[1] Greater love hath no man than this that a man lay down his life for his friends. Ye are my friends if ye do whatsoever I command you . . . These things I command you that ye love one another."[2] To be His friends, to love as He loved, was to be like Him, to follow in His steps, to do and feel as He did, to enter His Kingdom, and this was what Jesus strove to make men understand above all else, and for which He gave His life.

But, although His love for mankind was so great that it carried Him even to the supreme sacrifice on the Cross in order that men might learn that Love which must open the gates to the greater life, as He approached His end, He perhaps recognised that His earthly life was not a very tempting example—one who is persecuted, even to death, by his contemporaries treads a path on which few would care to embark! He therefore at the last revealed to His disciples the inner power that had been at the heart of His teaching and which, if followed, might make His Way acceptable to all men. And there can be no doubt that if we could realise the love for one another that He knew, the love that swallows up every other consideration, the rest must inevitably follow of itself. Therefore one feels, as one reads the story of Jesus' last hours with His disciples, that, although all else falls away, all other thoughts disappear—He almost seems to be counting the minutes still left Him—one thing stands out supreme, as if He were straining every nerve to impress upon His hearers what it was vital for them to know before it was too late. Which of us has not experienced at one time or another that anxiety to say what is most important at the very last moment, which, in all the preceding hours of leisure, we had left unsaid—so was it with Him. Although His whole life had been the expression of supreme love, yet, perhaps until the last hours He had on earth, He had taken it for granted that this must prevail. But when He was faced with the manifestation of what hate could do with men, and the full horror of the coming trial was closing down upon Him (the scene in the Garden of Gethsemane shows what He felt), then He perhaps realised for the first time the full power of a love that could carry Him through to the bitter end for the sake of His friends, then and in all time. And this realisation of the source of His strength must have convinced Him that there was only one

[1] Ibid. xiii, 34. [2] Ibid. xv, 13, 17.

thing capable of overcoming hate in the world, without which no new life could ever be achieved, and He therefore impressed this thing on His friends again and again: That ye love one another even unto death—that was all that mattered.

I have said a lot about the necessity of detachment from earthly concerns in the course of this work, and it is perhaps difficult to understand how both this and an all-absorbing love could possibly exist together, it seems a contradiction in terms. But I think if we turn to the realm of human origins for a moment we may get an idea of how one may lead to the other, and both be essential to the birth of a new life. In the original Aramaic in which Jesus taught, love and life are interchangeable terms, and it seems to me that this corresponds to the most fundamental principle of all living things. Although in animals the urge we call "love" hardly deserves the name, and in the highest human beings it is something so sublimated that the Buddhists call it "compassion," others "affinity," be it called what it may, there is no denying that it is always the source of new life.[1] If, therefore, a new life is ever to arise out of this present one, it is clear that it must have its birth in some form of love, however etherealised. "It is the spirit that quickeneth, the flesh profiteth nothing; the words that I speak to you, they are spirit and they are life."[2] And as all the words He spoke were inspired by a love which embraced all mankind, that love must quicken the child in the womb of humanity, and, embuing it with a spirit greater than any yet experienced on earth, must give birth to a new life. But, at the same time, such love must possess the power of completely detaching men from all considerations of the self. And even as the greatest love we human beings know of, banishes all else from the mind of him who loves, so would the love for all mankind never attain the supreme heights of "quickening" the new birth, unless the self were merged in the beloved and all earthly conditions and considerations ceased. "And this is life eternal that they might know thee the only true God"[3] . . . for "God is love, and he that dwelleth in love dwelleth in God and God in him."[4] Out of such spiritual union must rise the new birth, "the fruit to life eternal."

There is one last very important point in Jesus' life that is vital to our understanding of Him: from all that has been said in these pages, it is clear that the present existing formations will have to die out completely before the new life can emerge, and

[1] Is not attraction the cause of new formations even in crystals?
[2] John vi, 63. [3] Ibid. xvii, 3. [4] Ibid. iv, 16.

unless we can discover something that might give us reason to think that Jesus left nothing behind—even physically—which might reconstruct some new earthly formation, we cannot definitely accept him as a new manifestation altogether. Perhaps no one occurrence in the history of the world has been so much discussed as the last three days of Jesus' life, but I feel that even yet, the last word has not been spoken with regard to the significance of the crucifixion and what happened after, and there are many things which Jesus said at the consecration of His sacrifice, during His last supper, which are still far from being elucidated. Here in His last moments with His friends, Jesus certainly must have revealed to them the meaning of what was about to occur, a revelation which was obviously imparted to Paul, for it formed the basis of his whole apostleship. In Paul's letters, which laid the foundations of Christianity, it is not so much Jesus' teaching as Christ crucified that is preached to the world—and if any man ever understood what Jesus meant to mankind, I think he did !—therefore, if we would arrive at his knowledge, it is clear that it is to the last hours of Jesus' life that we must look for enlightenment. If we admit, in view of all that has been said here, that Jesus was one of the first entrants into the new stage beyond mankind, we must consider what He Himself said regarding His realisation of it, at the moment when He was about to consummate the new life, and reach the farthest point on the inflowing breath of which we have had any indication as yet.

It is my conviction that if we would understand anything of what Jesus intended to convey to His disciples before going out to end His life on earth, we should, to begin with, possess some knowledge of the ritual prescribed for the supper to be held in every orthodox Jewish household in consecration of the Passover. Whatever may be said to the contrary, Jesus was certainly brought up as an orthodox Jew, and was even, in all probability, a Rabbi. In the newly-discovered fragments of a gospel, which contain the earliest records of Jesus' life yet discovered, he is addressed as, "Master (didaskale) Jesus," and this "Rabbi Jesus" is probably the actual form in which Jesus was addressed by both friends and foes. (To make Him appear as the One Master, and detach Him from the Jews, the Christian Church forgot the Jewish formula !) But there are besides various other signs of Jesus' rank or condition scattered through the Gospels,[1] I think, that we need not hesitate in saying

[1] Matt. viii, 29. Mark i, 22. Matt. ix, 21. Only a Rabbi could have worn such a hem.

that when Jesus sent His disciples to prepare the Passover meal He was but acting in the manner prescribed for every orthodox Jew. And, further, if He desired to celebrate the Passover as was customary, all His actions at that supper must be interpretable in the light of the traditional rites of the Jews. For instance, "The cup of wine which Jesus handed to the apostles is still now handed round on Passover night by the householder to the members of his household."[1] Therefore I feel convinced that what He intended to tell His friends must also have been couched in terms that bore some relation to the liturgy used on such occasions, with which the disciples must necessarily have been familiar—they would othervise not have been able to understand the meaning of the symbols He used, and whence would Paul have got his knowledge?

After a careful study of all the texts in various translations, it seems to me that the secret lies in the words of the fifteenth chapter of the Gospel of St. John, and in the very obscure passage reported by the synoptics—evidently bearing on the subject of His death and after: "I will not drink henceforth of the fruit of the vine until that day when I drink it new in the Kingdom of God."[2] Certainly no one can ever have believed that Jesus meant to drink the juice of the grape in the Kingdom of God, obviously these words carried some special significance to those who listened to them, for this is the only saying of His that is recorded by the three first Evangelists—except those having a direct bearing upon His actions—of all He must have said in those last hours at supper. In order to appreciate what these words conveyed to the men who heard them, we must stop to consider the traditional symbolism of the Old Testament for a moment. In Old Testament language the "vine" signifies the people of Israel, which, after being broken and laid waste should be redeemed by a "provine," an offshoot—figuratively a "son" of the great vine. "This son of the vine is an allegory for the man or 'son of man' whom God has chosen to restore His people, His 'vine,' as the 'new Israel of God' to its former wide-spreading glory—an allegory for the Messiah,"[3] therefore it is certain that when Jesus proclaims: "I am the true vine and my Father is the husbandman"[4] He is proclaiming to every Jewish ear that He is the Messiah, and knowing this, all the rest is clear. If He be the greater life that has risen

[1] F. Nork: *Rabbinische Quellen and Paralellen zum Neuen Testament.*
[2] Mark xiv, 25. Matt. xxvi, 29. Luke xxii, 29.
[3] Dr. R. Eisler: *Wine Symbolism of the Last Supper. Quest,* Vol. 14, pp. 335.
[4] John xv, 1.

up out of the vine, then must it encompass the spiritual life of all mankind that has been and is to come, for He is the outcome of the old vine, therefore contains all the results of that old vine's experiences in the past, and is the forerunner of all that will shoot out of it in the future. Did we not learn above from Jung that the subconscious self is one in all mankind, that it contains all experiences, all characteristics of the whole human race, therefore any man who could cast off the material frame, and enter that greater, all-embracing life, must become the son of the vine: mankind.[1] And the meaning of Jesus' saying that He will not again partake of the fruit of the vine, that is, His greater nature, until He drinks it "being new in the Kingdom of God" (as the Coptic version has it), becomes clear. In other words, He told them that from that time on, He could not partake of the nature of the Messiah, could not realise the fruit of the vine (mankind) until He partakes of it a newcomer in the Kingdom of God, when all should be "fulfilled."

And yet, although the disciples reported these portentous words they do not seem to have understood their full import, for they obviously shared in the general expectation that He would "save Himself" by a Messianic revelation at the last moment: "they thought that the Kingdom of God should immediately appear."[2] This despite the fact that, believing Him to be the Messiah they, as Jews, should have known Isaiah's prophecy concerning Him: "He was wounded for our transgressions, he was bruised for our iniquities . . . he is brought as a lamb to the slaughter . . . for he was cut off from the land of the living; for the transgression of my people was he stricken. . . . He shall see of the travail of his soul and shall be satisfied; by *his knowledge* shall my righteous servant justify many."[3] What but such justification could Jesus have regarded as His goal when He says: "For the things concerning me have an end"?

It is, however, not necessary to seek for any hidden meaning in Jesus' words in order to know whether He knew of His coming death to this life and entry into a new state, for as He approached the end, He made no mystery of it, and showed the most amazing perception not only of what must occur immediately, but even of what would be the eventual consequences of these things: "A woman when she is in travail hath sorrow because her hour is come; but as soon as she is delivered of the child, she remembereth no more the anguish for joy that a man is born

[1] Ibid. xv, 5. [2] Luke xix, 11. [3] Isa. liii.

into the world. And ye now therefore have sorrow (the anguish of the coming *birth*), but I will see you again and your heart shall rejoice and your joy no man taketh from you,"[1] for it will be an inner force—even the "spirit of Truth." These words and those others to the same intent: "For I shall come again and receive you unto myself, that where I am ye may be also,"[2] constitute the "new covenant" that Jesus made with man, which He sealed by the offering of His life. But it seems to me a total misconception of Jesus to regard His death as a form of propitiation to God; He says quite definitely: "I lay down my life that I might take it again. No man taketh it from me but I lay it down myself." There is nothing here that suggests any kind of offering to satisfy a deity! When He says: "This cup is my blood of the new covenant which is shed for many," He was only using words which for the Jews meant that He was accomplishing the action expected of the Messiah whose death must be a shedding of the blood of the "vine," of all Israel in one—since for them all Israel is one com-panionship, one con-sanguinity—to attain a new life for all. Jesus with His wider vision was conscious that the Messiah must die that not Israel alone, but all mankind might learn how to Live: "And other sheep I have which are not of this fold: them also must I bring, and they shall hear my voice; and there shall be one fold and one shepherd."[3]

There was besides another significance for the Jewish minds of His hearers in that handing round of His cup, for this was a rite that was performed in every Jewish family, not only on every Sabbath, but was also an essential feature of the Passover meal. "The rite of dividing a consecrated cup of wine among all the participants of a meal, which is so obviously presupposed in the gospels, is however still often observed at the initial consecration (*kiddush*) of wine at each Sabbath or feast day. Then the household consecrates wine in the 'cup of blessing' . . . and the whole family shares this 'eucharistic' portion of wine. . . . 'Take this and divide it among yourselves,' and 'This cup which is poured out for you'—obviously imply that Jesus handed the blessed Kiddush-cup to his disciples"[4]—as also King David is expected to do at the opening of the messianic banquet, to the righteous participants thereat.

If therefore Jesus was celebrating this Passover consecration

[1] John xvi, 21. [2] Ibid. xiv, 3. [3] Ibid. x, 16.
[4] R. Eisler: *Wine Symbolism of the Last Supper. Quest*, XIV, Vol. III.

with His family of disciples, in orthodox fashion, as indeed is proved by His words: "with desire have I desired to eat this Passover with you before I suffer," then must He also have sung one of the "hymns" prescribed for these occasions. Among those often read at the end of the Passover discourse is Psalm cxvi, and this may very well have been the hymn that Jesus sang with His disciples before they went out. That hymn is a corollary to the words: "my blood *which is shed for you,*" verse 13 runs: "I will take the *cup of salvation* and call upon the name of the Lord." Now "kos jeshuah" (cup of salvation) can equally be read: "kos Jeshuah" (cup of Jesus), so that there is every likelihood that Jesus used this verse to convey to His disciples that the cup of Jesus—containing His blood—shall be the cup of salvation. That the disciples understood all these sayings to mean that by Him they would be saved, is but natural, seeing that they had been brought up in the traditional ideas of the Messiah.

But eventually that "cup of salvation," together with the later verse in the same Psalm: "Precious in the sight of the Lord is the death of his saints," ended in the orthodox belief that it was Jesus' intention to die "for the remission of the sins" of mankind, as Matthew has it, for which I cannot discover any sign or justification in any other place in the New Testament. John the baptiser preached baptism "for the remission of sins," not Jesus; and Jesus is even reported to have said to His disciples, when He appears to them *after His resurrection:* "Whosesoever sins ye remit, they shall be remitted unto them"; had He by His death remitted our sins, this injunction would have been superfluous. I cannot but think, therefore, that the words in Matthew, "for the remission of sins," were a later interpolation, more especially so as they are not reported by either of the other synoptics, whose records of Jesus' sayings at that supreme moment of the supper tally perfectly with one another and with Matthew, in all other respects.

And this suggestion seems to be confirmed by everything Jesus ever taught, nowhere is there anything to show that He regarded His coming death as that which should deliver men from the consequences of their own deeds; had this been so, He would not have said: "if *ye* have faith as a grain of mustard seed . . . nothing shall be impossible to you,"[1] and again: "if *thou* canst believe, all things are possible to him that believeth,"[2] etc. etc. What do these words signify but that

[1] Matt. xvii, 20. [2] Mark ix, 23.

it is *we* who must make the effort to attain to His level of life, He was the Way, not the gate-money! His role is clearly to make men aware that they can save themselves, and in that sense He gives His life for their "salvation." The idea that Jesus' death and our further participation in it at communion can buy off people's sins in the eyes of God, is merely the primitive idea of the blood sacrifice, and I believe it has been partly responsible for delaying us on our way to attaining the stage that He arrived at. If, instead of believing that Jesus remitted sins by his death, and that by our participation in it through communion, He can still remit them, men would realise that His death was but the supreme culmination of a life and teaching, which must needs lead to a relinquishment of this world—that He "shed His blood" that we might learn His Way and *Live*, they must mingle their blood with His in a cup of communion that would be the climax of all life on earth.

Paul alone among the early followers of Jesus seems to have known all this, for he says in words that only become comprehensible when taken in conjunction with all that has been said in these pages, regarding the course of the World Breath: "The first man Adam[1] was made a living soul (man being the first soul-or-mind-containing product of this earth) the last Adam was made a quickening spirit."[2] These words are profoundly significant if one ponders on the word "quickening." The child "quickens" in the womb, the sap "quickens" in the trees, the quickening is always the presage of a new birth—the first premonition of what is to come—and this very quickening-spirit Jesus pre-eminently was. He was the first quickening of a new life—the son that is to be born out of mankind—He left the Adamic stage and was "quickening" into a spirit stage; the last Adam was not the last man on earth, but the final product of earth, the supreme or latest product, the messenger of a new stage altogether. And I firmly believe that when we shall eventually understand the conditions of that new stage, we shall also discover the explanation of Jesus' disappearance from the tomb.

In this connection there is one point that has never yet been fully elucidated, and which I cannot pass over unnoticed, for I think that we are now in a better position to explain it than ever before. On various occasions Jesus says: "Behold we go up to Jerusalem and the Son of Man shall be delivered unto the chief priests and scribes, and they shall condemn

[1] Adam: earth, taken out of red earth. [2] Cor. xv, 22.

him to death and shall deliver him unto the Gentiles, and they shall mock him and shall spit on him, shall scourge him and shall kill him and *after three days he shall rise again,*"[1] or words to that effect. Some people might feel inclined to object that these words were interpolated later, but, seeing that they were repeated over and over again, it seems to me much more likely that this saying carried some particular significance to Jesus' followers, and belonged to the most carefully preserved traditions. To begin with, is there anything so very extraordinary in the fact that Jesus foretold His end, seeing that thousands of lesser men than He have done the same, and that His end in particular was but the logical outcome of activities, which He knew were nothing short of revolutionary, in the eyes of His brother Rabbis? And besides, did not these words, or something very like them, form one of the accusations brought against Jesus at His trial? It is in any case highly improbable that that was interpolated! If, therefore, Jesus really did prophesy His end, the last words of that prophecy form one of the greatest mysteries that confront us. His statement regarding the "rising again after three days" was as definite as were all His other statements regarding what was about to occur, and if these have been proved correct, it is unlikely that He should have made an unwarranted assertion regarding the three days. We are, therefore, forced to the conviction that there is something here that is not explainable by ordinary criteria—if the orthodox explanation of these things does not satisfy us!

In considering this matter of death in connection with all Jesus said about Life and bringing freedom from death, it seems to me there must be something here that is different to the life and death we know of. The death that is final death to all physical conditions is an event that probably has no connection whatsoever with the death that ends a life period—a mere dark stripe on the spectroscope! When Lord Rutherford succeeded in splitting the atom, it was a very different matter from causing the atom to loose energy, or even an electron, and so must the difference be between death to earth life and the total annihilation of all physical conditions. This last might perhaps, cause the atoms of which the body is composed to disintegrate and leave nothing behind at all; and, if this concept be correct, if ever there was a case when this occurred on earth, we might be certain that here a new life had taken birth in very truth.

[1] Matt. xx, 18: xxvi, 2: xvi, 21; Mark ix, 31; Luke ix, 44: xxiv, 7.

Jesus undoubtedly possessed a profounder understanding of human and other world conditions, than did any other man, and is it not possible therefore that He understood the law which governs the dissolution of the molecules of the body, when the enlightened spirit frees itself from the material world for ever? If it be conceivable that physical atoms break up and cease to coalesce, when all life as we know it ceases to inform them, when the energy, which is essential to the existence of atomic configurations, finally converts itself into a new form altogether; and if Jesus knew the laws controlling these things as we do not, (even to-day), it may be that He foresaw that it takes this body three days to disintegrate all earthly forms for ever. If that were so then in revealing to His disciples what He knew regarding those three days, He gave a final and decisive proof that He possessed knowledge that already belonged to another state of existence—for what has any other man known of such things? This may seem a wild hypothesis, but if one reads Frank Morison's masterly exposition of the last events of Jesus' life[1] there is no room left for any other explanation, it seems to me—although even so, I should hardly have dared to advance such a suggestion but for the progress in scientific knowledge during the last decades! Until the present time there was only one way of regarding the story of Jesus' burial and "resurrection," and that was by an unquestioning act of faith. But no one could have been blamed who was somewhat sceptical about the whole thing, and refused to believe in a Messiah, or in any "resurrection" on orthodox lines!

If however we now re-read His life and teaching in the light of the successive waves of evolution within the universal motion of the World Breath, we can regard the whole story in a new light altogether. We now know that it is absolutely imperative that every wave should die in order that the next might arise, and if we regard Jesus' teaching in the light of this knowledge, it becomes perfectly obvious that He meant His death to stand for the death of mankind, of the human wave, in order that the new birth might mature. Does He not say so in so many words: "Except a corn of wheat fall into the earth and die, it abideth alone; but if it die, it bringeth forth much fruit,"[2] and He was obviously applying these words to His own fate and its results, for they follow immediately upon the words: "The hour is come when the Son of Man should be glorified." His train of thought is clear, and these words show

[1] *Who Moved the Stone?* [2] John xii, 24.

a truly amazing perception of His position in relation to the story of mankind. Furthermore I cannot but feel, after all that has been said in these pages, that we too are bound to share Jesus' sense of the inevitability of all that happened in Jerusalem during that tragic feast of the Passover: the new wave had to arise somewhere, there must come some first concentrations of the new force, as there were first concentrations out of the nebulæ, and it happened that Jesus was one of these, and therefore could not possibly have ended His life in any other way than He did—only after the complete extinction of this wave could the new one rise supreme! Seen in this light, we cannot but regard the chief priests, the scribes, Pilate and Judas as mere instruments; if it had not been possible to use these as a means of laying down this existence, Jesus would have found some other, but for His purpose this was the best way because it must attract most attention, and serve to induce the greatest number of people to demand: who was this man? And so He started the new life in men's minds which has spread in ever wider circles to this day. "I will not leave you comfortless, I will come to you. Yet a little while and the world seeth me no more, but ye see me; because I live ye shall live also."[1]

There is a very beautiful hymn in the Apocryphal Acts of John which seems to me to summarise everything Jesus ever taught of what His life and death must mean to mankind, what is encompassed by the wider life of the next wave:

"I am a lamp to thee who seest me;
I am a mirror to thee who understandest me.
I am a door to thee who knockest me. . . .
See thyself in me who speak . . .

For thine is the Passion of Man that I must suffer.
Thou couldst not at all be conscious of what thou dost suffer,
Were I not sent as thy Word (Greek: Logos or Wisdom) by the Father. . . .

Who I am thou shalt know when I depart;
What I now seem to be, that am I not. . . .
In me know thou the Word of Wisdom."[2]

Every one of these words is full of the suggestion of things we have not been aware of hitherto; does He not say "I *am* a mirror. . . . I *am* a door. . . . See thyself in me who

[1] Ibid. xiv, 18.
[2] Hymn of Jesus. Apocryphal Acts of John v. 96.

speak "—what could such sayings mean but that He was to be an energy of spirit inherent *in all men,* a life which should embrace everything? Men were to know who He was when He departed out of the physical limitations, and entered into a state in which His life would be the light of men, as must be the lives of the greater unities that shall make up the wave succeeding this one. And the Passion of Man, His Passion, is everyman's: we must all go up to "Jerusalem" and leave this physical life on the Cross, before we can hope to go further and enter the new wave of a greater life. It was certainly to make men realise these things, to give mankind of His wisdom, that Jesus laid down His life for His friends. So far it has perhaps profited us little, but He says: "Be of good cheer, I have overcome the world!" And His having done so gives us an assurance that we may also do the same, if our love and understanding be great enough to give our lives for the LIFE of the whole.

II

I think I have now said enough to make it clear that Jesus' whole teaching was aimed at releasing men from the conditions of this world and helping them to enter the next stage, but how easy is it to talk and how difficult to achieve! This is not a lesson that can be understood by talk, if it were so, the world would have followed Jesus long ago; anyone in any walk of life could enter into that new birth which He foreshadowed, and yet instead of this, the world to-day seems further from it than ever. Considering the murders and persecutions, the revolutions and tyrannies that surround us, it is often difficult not to conclude that Christianity is dead. If Christianity were only the church, that conclusion would be justified, for even where all religion has not actually been prohibited, with every passing year nations become more lukewarm in their adhesion to it. But there is luckily something more than this. When Jesus said: "Behold I am with you alway even until the end of the world," and this could only be in a sense apart all doctrines and churches, it was Himself as a spiritual power, as an ideal planted in the mind of man, that could never be extinguished until the world of men had come to an end, and the new wave, the fulfilment of that ideal, had arisen. And with this conviction, I see the horrors perpetrated by revolutionaries in all countries from a new standpoint. Even though the Bolsheviks, for instance, abolish all religion, if we have eyes to look beyond this present day, at the great course

of humanity, we may realise, all appearances to the contrary, that the goal it has set itself is a much deteriorated version of the goal of all religions: unity of man. Lenin and his followers have tried to enforce what religion sought in vain to inculcate through appeals to man's individual conscience; they adopt the point of view of the man who said: "My children don't love me, but d—n 'em I'll make 'em." And who knows but that in, say five hundred years from now, it will not be recognised that they forced mankind to make the greatest stride ever made towards universal unity? Out of extremes something is always left over as residue, out of lukewarm spirits nothing ever comes, and in view of the fact that advance towards the next period is a cosmic necessity, I cannot but believe that Nature can use human cataclysms as well as stellar ones to forward her ends—that is so long as we are not wise enough to assist her voluntarily. A friend of mine once said: "It was necessary in former days that one man should die for the people, now perhaps a whole nation must be the sacrificial lamb, and the Russian nation is being crucified for us all." And I am inclined to agree with him, although I prefer to call them road-makers rather than beasts of sacrifice.

But we must not imagine that the terrors of the Bolshevik system are the only leavening powers in our time, science is also working for unity and equality, by opening doors that have always been closed, and inviting all men to participate in its discoveries. And as it helps us to realise that the truths it is unveiling are the same for all, and are not the prerogative of any sect or class, so must we finally recognise that the science of God is also above all differences, and its truths one and the same for all time. It has long been evident to the wise that the ideals put before mankind by the Buddha, Lao-Tsu, Moses, Jesus, Plotinus, St. Francis of Assisi, Ekkehard, or to-day Krishnamurti are identical, hence the Truth which inspired these ideals and the goal aimed at must also be the same, for these men are not moralists, they see Truth, the same once and forever, and their one aim is to express it, to enlighten mankind. Some among them were already in part what mankind shall become, were already in very truth "sons of man"—Jesus clearly attained a freedom from the limitations of human individuality, such as was never known before, His sense of unity with those around Him shows Him to have been capable of transcending the conditions common to both organic and inorganic forms, and

of entering a state where all is one: "Ye shall know that I am in the Father, and ye in me and I in you." No one has ever said that since, but where one has trod, others may certainly follow, and in their hearts men know they *can* follow, why otherwise should they have persisted in following Jesus through all the vicissitudes of 2000 years of failure? "Christ and Buddha were the names of a condition to be attained; Jesus and Gautama were the persons to manifest it,"[1] and that condition is eternal, it is not restricted to either time or place, not attached to any individual, sect or status; there all differences cease for ever.

"The soul into which God shall be born must have become free from, and lost to time; she must have soared upward and become transfixed in the riches of God. There width and breadth are neither wide nor broad. There does the soul know all things and recognises them there in their perfection. . . . Were there a hundred persons in the Godhead, and one who could realise distinction without number or quantity, yet he would not be aware of anything more than one God."[2]

If we regard mankind, not as a random element in space, but as one stage in the universal rhythm, then are those who have helped to raise the tide of humanity to that state, wherein "God shall be born," in the nature of cosmic forces. And, if we use the pulsations of life and death deliberately, inspired with the idea that these are but part of a greater pulsation, and aim at arriving at the sunset of this "human" period, and at unfolding the new dawn onto infinite horizons, unbounded by any sphere, finally the day will come when there will be "nothing more than one God." At the end of its period, being one, mankind must in unison throw out a wave of high potentiality, which will possibly form one single manifestation, of which there is continual mention in the fourth Gospel, but that will still not be the final wave, but only the child of this earth period. That will then in some far distant epoch, in circumstances incalculable, raise a wave of potentiality undreamt of to-day, yet another step nearer to the high tide of All-oneness—perfect freedom because all boundaries, all limitations between one and another, either persons, molecules or stars, will have vanished.

This has been the conviction that has guided me through all the long years during which I have been working out my Law of Periodicity, and, [apart all theories,] inspiring the many rises and falls I have been attempting to elucidate,

[1] Swami Vivekananda: *Inspired Talks*, p. 85. [2] Ekkehard, Vol. I, p. 3

there lies something much deeper than mere logic, something more like a faith, and if my readers now share it with me, and thereby enter into the swing of the world rhythm, this is already one small step towards the goal of the unity of mankind. I have attempted to play a fugue with worlds for notes, as simply as I could, so that all might hear and understand, and throughout its course I have tried to keep the great dominant tones of the main theme ringing out in an unbroken rhythm, and if I have succeeded in my object, all should now feel themselves advancing and retiring in a measure, that is accomplishing the ebb and flow of the universe: a rhythmic scattering and decrease of stars and atomic systems, and a rise and concentration of life into mind-energy, and eventual All-unity.

I have sometimes watched the swell on the face of the ocean, as it rose and fell in a great calm sweep of motion, until the fascination of it has hypnotised me, and with some inner eye I perceive the rise and fall in the universe sweep onwards with just such a serene motion: nothing hurried, nothing violent, just up and down, being—not being; waves of life, of light, of matter, of human experience, waves of stars and ether, finally waves of mind and soul, one and all striving onwards to a point beyond their own individual fulfilment, till some day all will break on the beach of God. And if my reader is now able to feel his life, not as that of a mere individual, gifted perhaps with an immortal soul, but as part of a vast breathing system in which any individual existence is but a vibration, a ripple on the surface of a wave; if he can arrive at a synthetic vision of himself, his people, his nation and his world as being one vast stage on the way to fulfilment—for I do not believe that any permanent retrogression is possible—then he must witness everything in his experience from that point of view, and nothing will ever distress him more.

Knowing this, man will make it his task to labour, "not for the meat that perisheth, but for that meat which shall endure unto everlasting life," which he can only succeed in doing by working "one pointedly" as the Bhagavad Gita says, without attachment to results, making himself fully aware of and responsible for his every action before that measure of eternity within. The goal once perceived can never be forgotten, and if de-materialisation be the way, then let us aim in all we do at detachment from the physical world and realisation of the mind-soul. Atomic output of matter, living intake of spirit,

that is God's way, and we, minute sperma though we be, carry the seed of a growth that shall some day reach the sky. What mad presumption, some will say, but does not this idea conform to all the laws of Nature? Does not the tallest tree have to contract itself into a tiny seed before it can live again in another? Largest to minutest, minutest to largest, these are the waves on Nature's ocean. The universe, obeying the same laws, has contracted itself down to the germ of conscious mind, planted in the brain of living men, which shall in time grow into another universe as immense as the physical, containing the substance of all the preceding worlds and carrying it to rest in the Fullness of the One. "For He is Ocean, birth-causing of gods, and birth-causing of men,—flowing and ebbing for ever, now up, now down."[1]

Something within has always known these things, but we have now at last attained sufficient enlightenment to draw this knowledge from the hidden places of our minds, and place it before us as a sign in the sky, which we must follow without delay. It is easy to say, but apparently the most difficult thing in the whole world to do, since only one or two have ever succeeded, but I think we have misapplied what those few have taught us, and therefore lost our way. We have continually gone outwards to look for Truth, whereas what comes to us from without is of no use at all; just as all defilement comes from within, so also does all enlightenment. Live the truth you have drawn from your own inner self. Read what Jesus said, what Buddha said, or Plotinus, or Nietzsche even, but then close the book and experience it, conquer every inch of the ground by your own initiative, your own effort. Delve down into yourself and let the fruit ripen from the core, only thus can it be "made whole." The atheist may be following this road as faithfully as the Pope in his Vatican, if he lives up to his highest convictions unswervingly. "And your highest hope be your highest idea of life," says Nietzsche, the greatest atheist!

There is no escape, whether we wish it or no, we must all, sooner or later, enter the kingdom that lies within. But I think we have advanced one small step on the way, by realising what was never understood before, namely, that this kingdom, the Nirvana, is nothing more nor less than the next wave that will carry the tide one step nearer the shore, the next heart-beat in the Breath of God. And even though that future

[1] Hippolitus: *Philosophumena*, T.G.H., Vol. I, p. 162.

condition may be as unthinkable to us, as is the condition of man to the amœba, still, we have the assurance of one who knew it to encourage us on our way : " Wide open is the door of the undying to all who are hearers ; let them send forth faith to meet it."[1]

[1] Mahavagga Sutta : *Under the Ajapala Banyan Tree.*

CHAPTER IV

NE PLUS ULTRA

CREATION—process—reality, we have been watching these move across and within the development of the universe, here and now this; there and then that; each stage arising from out of a previous one—and now our task is almost finished. From ultra-galactic nebula to man there was a ceaseless movement and change, a scattering, a dissemination; from man to beyond man there is still ceaseless movement and change, but it is a reassembling, a concentration of something a-material: from sensation to mind, from mind to something we must imagine as "spirit-energy," it has become a universe ever more ethereal. Further still it would be impossible to prophesy, but we may be sure that whatever follows, it will be ever more insubstantial, more pure from physical dross, more imponderable, until it be at long last reabsorbed into the Original One.

In all this motion we have been tracing, there has been but one thing that has remained unaltered in its manifestations, that, by the universality of its nature, has regulated and systematised all things, and that is the Periodic Law. In the beginning of this work, I proposed if possible to discover a law that should dominate all the phenomena of the universe, and unite both science and religion in one vast Whole, and if I have succeeded in portraying the Law of Periodicity as I conceive it, I think no one would deny that it does fulfil this role in the world. If further my conception of this law be rightly understood, and compared with the religious idea of God, I think that very little difference will be found between the two: governing as it does all motions, from those in the outermost heavens to that of the smallest atom, I feel sure that this Greater Law must eventually be recognised as the Power that carries the universe on its shoulders. It is, like God, a universal formative principle, and who can attempt to decide what, in cosmic phenomena, is due to creative Will, and what to the action of

automatic cause and effect, or to something as yet unknown, of the nature of both ? But there can be no doubt that in so far as the "Authentic Existence"—that which lies behind all things and makes one harmony of both outgoing and in-gathering—is concerned, It is not confined to any particular state, either mental or material.

In relation to that Existence, what then might be the reason for that Periodic Law, for that output and intake which it has described, why should such a motion ever have been started ? In India this problem has been an object of speculation since the earliest times, and the wisest men of that land have attempted to answer it by describing it as the "Dance of Shiva," the creator and destroyer, (which in their conception is the aspect of the Authentic Existence known in this universe, an aspect also periodic !), in which Dance, all events since the beginning, are but varying figures. God says to the hero, Arjuna, in the Bhagavad Gita : "There is nothing in the three worlds, O Partha, that should be done by Me nor anything unattained that might be attained ; yet I mingle in action. For if I mingled not ever in action, unwearied, men all around would follow My path, O Son of Pritha. These worlds would fall to ruin if I did not perform action."[1] It is an amazing thing to discover that this idea of a dance, a perpetual, rhythmic motion, is corroborated to-day by modern science, for we now know that there is nothing from stars to atoms that could exist without some form of motion. We are surrounded by photons of radiation, eternally moving in rhythmic waves, whether visible or invisible : from those things we can only see with our largest telescopes, down to the table I sit at, we could not apprehend any one of them but for the continuous action and interaction of their molecules. There is nowhere any dead mass left : as Professor Lindemann says : "We have seen that the concept of a solid body in the philosophical sense has little relation to reality. A solid consists of a number of particles linked together by some influence or force, which maintains them in near positions relative to one another. But even at the absolute zero these particles are not at rest."[2] And it seems that the very life of the universe depends on this fact, as the author of the Bhagavad Gita truly foresaw. Further, there can be no doubt that if all this activity were suddenly to cease, the world would "fall to ruin" ; this is one of those truths inherent in the very structure of our world, lying behind all

[1] Yoga, III, vv. 22, 23, 24.
[2] *Physical Significance of the Quantum Theory*, p. 80.

physical veils, and which the discerning eyes of the wise must recognise at all times and in all places.

But these facts raise another question: why should this universal activity be necessary for the manifestation of creation; surely a power that is all-embracing, and not restricted to the nature of "Thing," cannot *need* such activity? To this it seems to me there is but one reply: if the One is infinite, all-embracing, all-containing, universal, if there be nothing that is apart from that One, nothing outside it, then surely motion must be a part of It as well as immobility, things, life, man, whatever they may be in their ultimate aspect, must, in every form of their manifestation, be a part of It, and if motion be that which gives them the character they have, then is it part of the nature of the Whole. A mountain would cease to be a mountain if it were merely the potentiality of a mountain, the picture of a mountain in a man's mind, or a bit of its rocky peak, or a bush on the hill-side, or a rolling stone. No, the mountain must be all and every one of these things and more: in its structure, every stone, every boulder, every tree, the smallest wild flower, all contribute to the whole; and if in the One there were not every form, and every possible variation of form and non-form, it would cease to be either the One or perfect. It needs not alone men and trees, birds, diamonds, gases, electro-magnetic waves, thoughts and deeds, music and the child's laugh, but equally the infinite variations of all these things; "the hairs of your head are all numbered" is not a metaphor, but the absolute truth. If there were a sparrow with a thousand feathers, but one with one thousand and one could never exist; if there were men with one hundred thousand hairs on their heads, but never any with one hundred thousand and one, the One would be imperfect. Every possibility, every potentiality must live itself out both as idea and as realisation, anything else would imply a restriction of the One. To this it may be replied: if this be so, then, in this very question of motion is the One limited, for if nothing can exist that is not in motion, is immobility not of the nature of that One? And here again, without any warning, we run up against the Law of Periodicity. Is it not conceivable that all periods are but images of the essence of the prototype of all things, and that even the nature of "God" manifests in periods? We are (or rather our universe is) in the motion period, may it not be possible, that when the last intake of God's breath has occurred, there will follow the period of rest? Eastern mystics always speak of the "day and the night of Brahm," and it is perfectly

conceivable that this aspect must also be inherent in the nature of the One as are all other things.

Plotinus and Ekkehard, two of the greatest of all mystics, express this idea in words which seem to me of the very substance of it, and beyond which I do not think it is at present possible to go: "The Divine remains in its own unchanging being, but from its perfection and from the Act included in its nature, there emanates the secondary or issuing Act, which—as the output of a mighty power, the mightiest there is—attains to Real Being as second to that which stands above all Being. That transcendant was the potentiality of the All; this secondary is the All made actual."[1] And, to show that this Truth remains the same for all time, when we turn to Ekkehard we discover the identical idea, a thousand years have not altered it, Christian or Pagan foundations make no difference: "The eternal emanation is in itself the manifestation of God in pure apperception; wherein the Perceiver is that perceived."[2]

And beyond this, we now know that the Law of Periodicity requires that following upon the "issuing Act," the "emanation," there must come an entering or immanating act. But, my reader will here object, cannot That "which stands above all Being" dispense with the necessity of periodicity? Let us cast our minds back for a moment and remember how that the microcosmos was in every detail but the image of the macrocosmos, how that both acted alike and conformed to the same laws, and finally consider that if all this be but the nature of the "All made actual," then is man also part of that nature, his wave of being is but part of the externalisation of the "Divine." As above, so below—that is universal Truth.

Should we not therefore be justified in thinking that the phenomena apprehended by the conscious mind, conform to some pre-existent image within its own structure, that it does not create, but *re*-cognises? If we regard the mind and everything else in the universe as part of the great Breath of God, then must all within that Breath possess the characteristics of that from which it came and to which it will return—and the Law of Periodicity is not necessarily *carried on* into the One, but because of being inherent in the primal nature of the Source, it *flows into* that from which it is derived.

Last of all we must ask ourselves: if such a vast period as this great Breath of God, this terrific tide in the ocean of Oneness, that starts with the primal nebula, and ends with a

[1] *Ennead*, V, 4, 2. [2] *Of Two Paths*, Vol. I, p. 125.

reabsorbtion into the One, be inherent in the nature of that One, what does it contribute to that nature, why should such a thing be necessary to It ? Let us consider for a moment what the value of one output and intake of breath may be to the life of man ? In itself it is very little, but as a link in a chain that makes up existence, it is all important. Likewise for the Authentic Principle, the whole period of exhalation, and inhalation, of cosmic ebb and flow, has something of the same value perhaps, except that we cannot but think that the One, being perfect always, cannot be any the better or worse for what It takes in or puts forth. The only logical explanation would be that : as It must contain all things within Itself, so also outflow and intake with all their attendant consequences ; but in this case they do not, as with living things, alter the composition of the Whole, but just form part of the eternal IS.

That is the reply which my reason demands, but as mystic, I feel there is something more. I cannot refrain from the conviction that this periodic exhaling and inhaling makes up the eternal Life of the ALL-ONE, *is* Its very Life, as it makes the life of all things created in Its image, be they organic or inorganic ; I believe that all and everything lives by periods because the Prototype is periodic. And I believe that It renews Itself by very reason of its emanation and immanation ; Its emanated material-energy does, on its long way, dissolve and purify Itself for ultimate reabsorbtion as spirit-energy into the One ;—although I must not be misunderstood in this. It is not the One Itself that goes through such a process of purification, but that which It throws out, and I do not even mean " purification " in the sense of bettering, but of subtilisation if I may use such a word. The One is also not any greater or less, not any better or worse by what It puts out or what returns to It, It forever remains the same ; only perhaps, if there were no alternate periods of action and inaction in Its nature, there would neither be an Authentic Existence, nor anything else.

What then is the nature of that Authentic Existence, wherein all periods find ultimate consummation, how may we "authenticate " It ? Here, it is only possible to proceed by a process of induction ; no man but one has ever attempted to describe that nature : " no one is good but God alone," that is our only positive knowledge. But if on the other hand we can obtain an understanding of what It *is not*, we may perhaps approach a little nearer to what *It is*. More than this cannot be asked in our present condition, the few who have known something more, could never speak of it, we can only catch a reflection of a

supreme experience shining through all their subsequent words and deeds.

I can only hope to make this, the greatest of mysteries, comprehensible to my readers, by an illustration drawn from the conditions of our apprehension of the world around us: starting by the understandable to reach the indescribable. If we consider the circumstances which rule our perceptions of all manifestation, we must realise that the position of anything in our minds is ruled by the primal concept: is or is not; all that is, takes shape by reason of that which is not it, around it. In short, we distinguish what is one thing and not another, not because each *is something* in itself, but because it is delimited by all the *are nots* outside it. If I could see all precisely alike, there would be no separate identity left. To make myself clear: I desire something I have not got, the object of my desire is in itself no more desirable than is any other thing, it would cease to be an object worthy of desire if my desire ceased to lift it out of its framework, and give it distinction. My recognition of anything encloses it in the space-time framework: China might be the whole universe, but directly *I think* it, I limit it to one particular moment of time and space. My mind is incapable of thinking a China stretching back into an indefinite past, all the Chinese that have ever lived on that spot of earth during all the centuries, all the land that goes under the name of China, all its houses, works of art, animals, customs, religions, in one vast whole; I can only pick out one thing at a time, and, while thinking that, China to my mind *is not* all the other things. I circumscribe it into one particular form of space-time, by the act of thinking about it, and what IS China in my mind is created by the millions of other things which my mind rejects.

This same rule holds good with regard to anything we think or feel: if I enjoy one thing, this enjoyment excludes all other possible joys; even those much greater than that which I experience at the moment, cease for the time being to have any greater significance for me, than pain would have. If I commit sin, in itself it may be nothing good or bad, but in so far as it *is not* virtue, it becomes sin. And so it is throughout our lives: each thought, each conception, each act, becomes something in just so far as it ceases to be all the other things, and thus has been built up our world of what the Indians call: "nama rupa," name and form—the illusion of distinction, But, if we take these Indian terms for individuality, and examine them carefully, we must realise, firstly, that form is

but a condensation of molecules, the same as those that make the air around us, the dog or the chair, a whirlpool in the great stream of existence, let us say. If we could cease to see our individual whirlpool, but acquire the sensation of universal, equal molecules, this form that *is* must merge into a homogeneous entity with all that formerly it was not. There would cease to be any individual formations, but just something like the passing clouds in the sky, as evanescent, as insubstantial, as undefined as they prove to be when we fly through them or examine them under a microscope, if this were possible!

And what of name? Name represents the living, thinking, individual whirlpool—nameless, we become undistinguishable from any other form—free of individuality. All religious orders, of whatever denomination, have understood this, and at the entrance to the monastic life every man or woman loses his or her name. They have evidently failed to grasp the real significance of this act, however, for they have assumed another name instead, thus re-establishing an individuality, and again losing the freedom they had gained. This question of name seems a very small thing, paltry even when measured by the end in view. But has anyone ever stopped to consider what he would be without any name of any sort, if, from the earliest age, no call of "Mary" or "John" had conveyed the sense: this is I; if, in later years, one had entered a world far from that where one was known and personified, without name, without any characteristics—beyond those of one's appearance—by which one's personal individuality could become known; if one had become merged in a crowd of nameless ones, one of them, nothing else, possessing nothing but one's shirt, and the few crumbs of one's daily bread, asking for no place, no position, no possession—what would one's sensations be like? I know, because I have dreamt myself in such a condition: I have wandered amongst the hills, through the cornfields, amongst simple folk in the villages, without a name, and I have woken up with a feeling of immense freedom, of elation, of joy; I had lost what tied me to all the conditions that made up my life as a separate individual; I was no more either Beckett, or L—— or C——. I was just part of the world around me, just a living, sentient, sensitive atom in the vast universe, conscious only of boundlessness, of impersonality, of unattachment. That, I feel sure, is the beginning of the way, that is where: is and is not, cease completely as far as personality is concerned.

And what applies to man, applies a thousandfold more to God. So far, throughout the history of man, God has, with very few exceptions, been classified by the same means as those that have made up this name and form world ; when conceived as the loving Father, He *was not* the beloved child ; if He was the God that punished unto the third and fourth generation, He could not be one capable of going out to meet the prodigal, " while he is yet a long way off " ; if He was the creator, He could not at the same time be the destroyer in our minds, hence arose the idea that wickedness shut man out from God's presence, limiting not man but the " Almighty ! " In all these ways have we excluded a so-called " absolute Power " from any absolute Be-ing, and limited It to some portion of our space-time conception. Not only this, but whatever *is* in our minds becomes cut out of the universal Oneness, by a beginning and an ending: pain ceases where pleasure begins, if an evil is proved to be a blessing it ceases to be an evil, and even though a creator may create by destroying, the fall of the leaf cannot synchronise with the blossom on the same tree ; with the cry of the child, the mother's pain turns to joy—and so also is it in relation to our creation of God: whatever we assert of Him must be in the nature of every other assertion we make, namely, subject to beginning and end, never infinite. And I say " *our* creation of God " advisedly, because God so far has shared the fate of all the other aspects of the world that our minds create: in picking it up, our minds in some way create this God-existence by a form of segregation.

Let us consider a mirror for a moment ; it is certain that what I see in it *is not* what the person opposite me sees there, but to each his aspect is the real content of the mirror. And if we stop to think about it our minds must know that both these aspects are in it simultaneously, and that it is only our individual point of view that excludes one half in accepting the other. If our minds could, in like manner, realise a simultaneous knowledge of everything in the entire universe, throughout all ages, without distinction of here or there, great or small, past or present, beginning or ending, love unbounded by any non-love ; enter a condition of existence in which all differentiation merged into one, as are all things in a mirror even though we only perceive a part of it, then would we begin to obtain a God-vision.

But so long as there is the slightest effort at differentiation left in our minds, even if it be only " God is Love," we are still as far as ever from an understanding of the One-All, for we

cannot conceive even love without its relation to something. Even if we regard it as universal, if we go beyond man, beyond all living things, and see the attraction between crystals, between magnet and magnetised, the gravitational pull between worlds, as love, we are still bound to phenomenal events. God as love is the greatest, most all-embracing *conception* we can have of the Deity, but it is still a conception wherein there is a definite difference: God *is* love but God *is not* non-love. If God were love, and love were God, where there were no receiver of love, there would He cease to be.

When our minds can perceive this, or even conceive an Idea that fills everything and no-thing, because it is the very principle TO BE; which stops neither at the doors of vice or pain or ending, nor at the limits of erg-secs; which likewise does not start with virtue or beauty, or ether, or space-time (or any other) dimensions; an Idea which does not manifest itself on the tablets of Moses any more than in the voice of the nightingale; in short, were we able to conceive an Idea unrelated to any event, undefined by examples, everywhere unchangeable, then might we attain to a realisation of Being—Being-as-such, without place or time. Who and how, where and when, belong to the world of differentiations, are the rise and fall of some tide, and *as such* are they of importance; but as soon as we cease to register any correlation, and aim at reaching the One-All, they must disappear, together with all other terms of appearance. Behind all that IS, there is THAT-WHICH-IS-NOT-THIS. When THIS ceases *to be* for us, then opens THAT which is *in Itself*, but is not confined within the space-time boundaries, which condition everything of which our limited perceptions can assert IT IS.

Ekkehard says: "Thou shalt know Him without images, without intermediary, without semblance."—"If I am to know God thus without intermediary, then must I even become He and He I."—"But that is exactly what I mean! God must even become I and I even become God; so entirely one, that this He and this I are one is, and remain so, and—as pure Being itself—work one work in all eternity! For, so long as this He and this I, or God and the Soul, are not one single Here! one single Now! so long can the I never co-operate with, still less become one with the He."[1]

I have now reached the end of my task, I have tried to allow reason and logic to govern all I have said thus far, and I feel

[1] *On Being Renewed in Spirit*, Vol I, p. 167.

the circle is complete, and we have reached the place where all thought, all laws must cease. If my reader does not care for mere speculation, let him now lay down this book, to read the rest is unnecessary, unless it may interest him to see what the personal belief might be which has guided me throughout this work and been my inspiration. What follows is my own personal act of faith, and need not necessarily be another's, let that be as it may.

No one could be more conscious than I am of the complete inadequacy of the few lines with which I have attempted to portray That into which the great cosmic Breath has been absorbed at last. But any words dealing with that subject can only be in the nature of a call from one soul to another who realises the same things, they can never hope to teach the Ultimate to those who do not know something already. "The soul (Âtman) is not to be obtained by instruction, nor by intellect, nor by much learning, He is to be obtained only by the one whom He chooses,"[1] to him that hath shall be given, and he may hope to sever himself at last from the physical plane, and enter that condition where man no more exists as man, nor as "anything of which it can be said: it exists or it exists not."

But, until that moment is reached, what happens to each individual on his course from this, his human stage, to the next? Every religion on earth has its own solution to this problem, and it might almost be said that it is this that distinguishes religion from philosophy. Millions of people in this world live their lives governed by the hope or fear of what may happen after death. But having realised that life and death are mere periods in the law of existence, and as such are no more important than are day and night, what, if anything, occurs when we leave this, our present life period behind? We have seen that it is the mind that has raised us up out of the control of entropy, and built up a structure continually increasing in the unity of its collectivity. By mind increase we have slowly risen from amœba to man, but what happens then? Is our individual life but a passing shadow upon the waters, nothing remaining of what we are, to carry on the wave, except what is carried on by our children? A great number of people would answer: yes, to that question; many others would say: no, we go to Heaven or some kind of Elysian Fields—(or to Hell as the case may be!). Perhaps the greatest number of people to-day would admit that reincarnation of some kind seems the most

[1] *Katha Up.*, 2, 23.

acceptable solution of the problem, and to that number I belong.

But here I wish to make myself understood unequivocally, for it is essential to all I have said; I do not mean a transmigration of souls when I use the word "reincarnation." As energy is taken up in quanta by the atom, so I believe our bodies (or those of our parents at conception, it is immaterial which) are tuned to catch a certain quantum of an energy so far not identifiable by scientific means. When that energy has done its work in this individual body—both the inner work on itself, and the outer work that must be accomplished by this exemplar of world phenomena—then is it released by the body, and what we call "death" inevitably and automatically occurs; matter releases spirit as the atom releases its wave of radiation, when the electrons have spread to the outermost circles possible to that particular atom. This life's materials then fall back into themselves until they catch another quantum, whilst the wave of what we may call "spirit energy" that was released, goes travelling forward—*not as an identity of any sort*, but as something which is most nearly described as a "potentiality" —until it is caught up once more, next year, or in a thousand years, by living atoms possessing the requisite gravitational power, and being in the proper state of "ionisation" to receive it. I well know the chief objection that is always raised when this matter is spoken of, namely: "I have no wish to lose my identity, to say I go on in such form as you describe is tantamount to telling me that there is nothing at all after death." But that is another point about this theory: we shall retain our identity in the form of being our own causes and effects, so long as we do not *will ourselves free of it*. Therefore, if we wish to remain as we are, we undoubtedly may cause ourselves to do so. This idea belongs to a complete system, however, which I cannot go into here, but I think I have said enough in some of the preceding chapters to make it clear that we ourselves are responsible for building the way we wish to go. When we shall have fully realised our own responsibility in this matter, and that the goal is ever there, one and the same, to be attained by our own efforts, this prospect will lose all its terrors for us.

In India, ideas of reincarnation are always bound up with the Law of Karma (the automatic action of cause and effect), which acts through as many lives as are necessary to exhaust all the effects of all the causes to which man has given rise, throughout the course of such lives. And these two ideas are necessarily

corelated, for unless one were prepared to accept the doctrine of "grace" which is inextricably bound up with the idea of a personal God, it would be difficult to imagine how we could free ourselves of all the construction which centuries have built into man, and to which we continue to add bricks every day of our lives, in the course of one short period, not even one full life, of right understanding. It would seem to be impossible that the sense of individuality inherent in the nature of mankind could suddenly end in one short existence, without long preparation beforehand for such a transformation. And I do not deny that I believe such preparation does take place in most cases: I believe, for instance, that, not having yet attained final enlightenment, whatever wisdom I have achieved in either philosophy or metaphysics in this life will accrue to the benefit of the future being which will have caught up my "energy"; I believe that I am now reaping the fruits that my energy had collected in its development in other lives; I, for instance, should probably never have thought of the Law of Periodicity, had not my mind been imbued with a spirit already trained and directed towards trans-substantial affairs! It is undoubtedly very rare that a sudden enlightenment, coupled with complete freedom from attachment to life, breaks in upon any man. Indians would say that St. Paul had gone through many lives of preparation before he trod the road to Damascus; waves of spirit-energy, like waves of light, are a long way on the road of matter before they attain freedom.

But this does not mean that such waves *cannot* escape suddenly, however rare such an occurrence may be. There is no reason why, if there be a one and only Truth, realisation of it should not burst open the gates of the soul in one flashing moment. Jesus was obviously of that opinion; what other reason could He have had for assuring the thief on the Cross who saw Truth in the last hour of his life, that he would reach the Kingdom that very day? At such a moment he could not have gone against his innermost conviction. Another proof of the same idea is the parable of the householder, who went out in the morning to hire labourers for his vineyard, agreeing to give every man a penny, and who gave the same penny to the last-comers, who had laboured but an hour, as he did to those who had sweated through the heat of the day. Clearly the truth realised in one hour is the same as that which is the fruit of the labour of many lives, and if in his eyes the "Kingdom of Heaven" was a condition, some might "be accounted worthy to attain it" without dying "any more."

But at the same time, these last words prove that He knew that some must die some more times, must, like Abraham, Isaac and Jacob, go on living, and "come again" like Elias, until they are ready, as the Indians also believe.

It seems to me that there is only one conclusion to be drawn from all these facts: taken in conjunction, both Indian and Christian ideas show that behind everything there is a condition which never alters, it is only those who seek it that are different, and discover it by different means. Therefore are reincarnation and what Christians call "grace," merely two coefficient experiences, and manifest so completely logical a scheme of things that it is surprising that men have quarrelled for so long over the respective validity of one idea or the other. To my way of thinking, it is not a question of "either—or," but quite simply of two phases of one thing: we have the reincarnating mind, which pursues its path by degrees, achieving greater and greater enlightenment, but which until it has completely freed itself from attachment to the conditions of this world, still creates cause and effect. On the other hand, as the supreme Truth is ever here, around us, in us, it is equally possible that the inner eye might suddenly open, and in one hour, one moment, enlightenment be attained. It all depends on how strong be the will to accomplishment. If, as the Indians say, a man longs for God as does the drowning man for the saving hand, then must his will to reach Him abolish everything that stands in the way and open the gates for him to enter immediately into the great One. If, on the other hand, he takes things easily, the path thereto can be prolonged indefinitely, until the necessary rise of a new periodic wave drives him into something else, or leaves him behind like the ashes of stars and universes.

But although ultimately final liberation be but one, there are as many roads that lead up to that end as there are men, and I feel certain that every man on every road is invaluable to the scheme of the whole, even though he only be one of the millions of leaves that fall to the ground and fertilise the soil out of which shall grow the young oak. Nature sets no store by individuals, for her the fertiliser is as vital a necessity as the sprouting seed, none could exist without the other. But we men have attained a conscious will, and, even though evolution may have achieved much by the chance survival of the fittest, we now possess the power to shape our course, and Man, by his own volition and perseverance, may cause the acorn to result in a tree whose branches shall reach the sky in

another 300,000 years; or he may leave it to Life to work itself out in another 2000 million. Possessing now the power of choice, the next step rests with us: "If I had not come and spoken to them they had not had sin; but now they have no cloak for their sin."[1]

And these human beings that rise and fall over the surface of the world sea, in a continuous forward motion, what might they be like from a God's point of view? Seeing that everything material belongs to the great ebb of the vastest of all tides, and that what rises up out of it to flow towards the shore is but the second indrawing period of the same movement, and that all the infinite variety of events within this movement are but incidental to the great state of Be-ing, of which this tide is but one breath, might we not perhaps be so bold as to suggest that all the waves, rising and falling on the surface of this vast ebb and flow, might be thoughts floating across the surface of the mind of the Creator? One such idea might run through many centuries of earth-life; another idea may be burning away through billions of years in the firmament; whilst yet another may play itself out in the wave of a human life!

But, whether we regard all the contents of the Universe as such ideas in the mind of God, or whether they seem mere drops in the ocean of time, there is no doubt that one and all are inexorably caught in the meshes of the World Breath, which is sweeping all things with it on its way back to the heart of the Supreme.

[1] John xv, 22.

EPILOGUE

FROM a rock, twelve hundred feet above a southern sea, I was once watching a waterspout driving over the face of the ocean—what was it, what did it suggest? Up at the top it was just a cloud-bank, nothing in itself, ephemeral, possessing no absolute reality. But as it spiralled downwards, it concentrated more and more, until just as it reached the point at which the nucleus might have been it melted into the infinite sea below. And I knew it was not just water falling down from above, but that it was power being drawn upwards and outwards from something that, to my gaze, was infinite, and on the face of which the waterspout was but a mere trifle.

Such is the nature of all I have been attempting to describe: the diffused vapour which took on in my eyes the definite shape, was yet something which had been the ocean, and even though an insubstantial image thereof, it retained in its fabric something of the Reality below. But when the waterspout ceases, that which had risen up sinks back into the Oneness from which it arose. And this was not before more empty, nor yet is it now more full. And the clouds disperse to nothingness.

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Osmosis - The passing of liquids or gases thru moist cell walls or other membranes from places of higher concentration of a substance to those of lower concentration of it.

Chromatin - the essential substance of chromosomes and nuclei; so called because it is readily seen in color when dyes are applied to the cells. 128

SEC = unit of time
PHOTON = page 39
ALPHA BETA GAMMA XRAYS page 41
Quantum is mathematical calculus governing periodic

Quantum theory - That theory radiation from a body is emitted only in discrete (distinct) units (called quanta) and, according to some forms of the theory, that absorption occurs in the same discontinuous manner.

Entropy - A kind of conventional thermodynamic elements relating to the property or condition of a substance.
Law of Entropy - page 89

Thermodynamical equilibrium p 96

Angular momentum p 98

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